TSD File Inventory Index

Date: October 18, 2001

Initial: CMHeneian

Facility Name: Chicago International / Chicago Exporting Site (Two Fields Site)			
Facility Identification Number: ILR 000 010 884			
A.1 General Correspondence		**B.2 Permit Docket (B.1.2)**	
A.2 Part A / Interim Status	√	.1 Correspondence	
.1 Correspondence		.2 All Other Permitting Documents (Not Part of the ARA)	
.2 Notification and Acknowledgment	X	**C.1 Compliance - (Inspection Reports)**	√
.3 Part A Application and Amendments		**C.2 Compliance/Enforcement**	X
.4 Financial Insurance (Sudden, Non Sudden)		.1 Land Disposal Restriction Notifications	
.5 Change Under Interim Status Requests		.2 Import/Export Notifications	
.6 Annual and Biennial Reports		**C.3 FOIA Exemptions - Non-Releasable Documents** C-3	/
A.3 Groundwater Monitoring		**D.1 Corrective Action/Facility Assessment**	
.1 Correspondence		.1 RFA Correspondence	
.2 Reports		.2 Background Reports, Supporting Docs and Studies	
A.4 Closure/Post Closure		.3 State Prelim. Investigation Memos	
.1 Correspondence		.4 RFA Reports	
.2 Closure/Post Closure Plans, Certificates, etc		**D. 2 Corrective Action/Facility Investigation**	
A.5 Ambient Air Monitoring		.1 RFI Correspondence	
.1 Correspondence		.2 RFI Workplan	
.2 Reports		.3 RFI Program Reports and Oversight	
B.1 Administrative Record		.4 RFI Draft /Final Report	

Total - 2

.5 RFI QAPP		.7 Lab data, Soil Sampling/Groundwater	
.6 RFI QAPP Correspondence		.8 Progress Reports	
.7 Lab Data, Soil-Sampling/Groundwater		**D.5 Corrective Action/Enforcement**	
.8 RFI Progress Reports		.1 Administrative Record 3008(h) Order	
.9 Interim Measures Correspondence		.2 Other Non-AR Documents	
.10 Interim Measures Workplan and Reports		**D.6 Environmental Indicator Determinations**	
D.3 Corrective Action/Remediation Study		.1 Forms/Checklists	
.1 CMS Correspondence		**E. Boilers and Industrial Furnaces (BIF)**	
.2 Interim Measures		.1 Correspondence	
.3 CMS Workplan		.2 Reports	
.4 CMS Draft/Final Report		**F Imagery/Special Studies** (Videos, photos, disks, maps, blueprints, drawings, and other special materials.)	
.5 Stabilization		**G.1 Risk Assessment**	
.6 CMS Progress Reports		.1 Human/Ecological Assessment	
.7 Lab Data, Soil-Sampling/Groundwater		.2 Compliance and Enforcement	
D.4 Corrective Action Remediation Implementation		.3 Enforcement Confidential	
.1 CMI Correspondence		.4 Ecological - Administrative Record	
.2 CMI Workplan		.5 Permitting	
.3 CMI Program Reports and Oversight		.6 Corrective Action Remediation Study	
.4 CMI Draft/Final Reports		.7 Corrective Action/Remediation Implementation	
.5 CMI QAPP		.8 Endangered Species Act	
.6 CMI Correspondence		.9 Environmental Justice	

Note: Transmittal Letter to Be Included with Reports.
Comments: Documents do not justify individual folder per schedule. G.3 Enforcement Confidential documents are in separate folder

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

Form Approved. OMB No. 2050-0028 Expires 9-30-96
GSA No. 0246-EPA-OT

Please refer to the Instructions for Filing Notification before completing this form. The information requested here is required by law (Section 3010 of the Resource Conservation and Recovery Act).

96.004

EPA Notification of Regulated Waste Activity

United States Environmental Protection Agency

Date Received (For Official Use Only)

OCT 06 1995

I. Installation's EPA ID Number *(Mark 'X' in the appropriate box)*

ILR 000 010 884

[X] A. First Notification

[ ] B. Subsequent Notification (Complete item C)

II. Name of Installation *(Include company and specific site name)*

Chicago International Exportin

III. Location of Installation *(Physical address not P.O. Box or Route Number)*

Street: 4020 S. Wentworth Ave.

Street (Continued):

City or Town: Chicago | State: IL | Zip Code: 60609 -

County Code: 031 | County Name: Cook

IV. Installation Mailing Address *(See Instructions)*

Street or P.O. Box: 4020 S. Wentworth Ave.

City or Town: Chicago | State: IL | Zip Code: 60609 -

V. Installation Contact *(Person to be contacted regarding waste activities at site)*

Name (Last): Cohen | (First): Steve

Job Title: President | Phone Number (Area Code and Number): 312-924-4004

VI. Installation Contact Address *(See Instructions)*

A. Contact Address: Location [X] Mailing [X] Other [ ]

B. Street or P.O. Box: 4020 S. Wentworth Ave.

City or Town: Chicago | State: IL | Zip Code: 60609 -

VII. Ownership *(See Instructions)*

A. Name of Installation's Legal Owner: Steve Cohen

OCT 02 1995

IEPA/DLPC

Street, P.O. Box, or Route Number: 4020 S. Wentworth Ave.

City or Town: Chicago | State: IL | Zip Code: 60609 -

Phone Number (Area Code and Number): 312-924-4004

B. Land Type:

C. Owner Type: P

D. Change of Owner Indicator: Yes [ ] No [X]

(Date Changed) Month / Day / Year:

EPA Form 8700-12 (Rev. 11-30-93) Previous edition is obsolete.

Continued on Reverse

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OCT 02 1995

IEPA/D...

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Form Approved. OMB No. 2050-0028 Expires 9-:
GSA No. 0246-EP.

ID - For Official Use Only

CHICAGO INT. EXPORTS

VIII. Type of Regulated Waste Activity *(Mark 'X' in the appropriate boxes; Refer to instructions)*

A. Hazardous Waste Activity

1. Generator (See instructions)
   - [X] a. Greater than 1000kg/mo (2,200 lbs.)
   - [ ] b. 100 to 1000 kg/mo (200-2,200 lbs.)
   - [ ] c. Less than 100 kg/mo (220 lbs)
2. Transporter (Indicate Mode in boxes 1-5 below)
   - [X] a. For own waste only
   - [ ] b. For commercial purposes

Mode of Transportation
- [ ] 1. Air
- [ ] 2. Rail
- [ ] 3. Highway
- [ ] 4. Water
- [ ] 5. Other - specify

- [ ] 3. Treater, Storer, Disposer (at installation) Note: A permit is required for this activity; see instructions.
4. Hazardous Waste Fuel
   - [ ] a. Generator Marketing to Burner
   - [ ] b. Other Marketers
   - [ ] c. Boiler and/or Industrial Furnace
     - [ ] 1. Smelter Deferral
     - [ ] 2. Small Quantity Exemption

   Indicate Type of Combustion Device(s)
     - [ ] 1. Utility Boiler
     - [ ] 2. Industrial Boiler
     - [ ] 3. Industrial Furnace
- [ ] 5. Underground Injection Control

B. Used Oil Recycling Activ...

1. Used Oil Fuel Marketer
   - [ ] a. Marketer Directs Shipment of Used Oil to Off-Specification Burner
   - [ ] b. Marketer Who First Claims the Used Oil Meets the Specifications
2. Used Oil Burner - Indicate Type(s) Combustion Device(s)
   - [ ] a. Utility Boiler
   - [ ] b. Industrial Boiler
   - [ ] c. Industrial Furnace
3. Used Oil Transporter - Indicate Type(s) of Activity(ies)
   - [ ] a. Transporter
   - [ ] b. Transfer Facility
4. Used Oil Processor/Re-refiner - Indicate Type(s) of Activity(ies)
   - [ ] a. Process
   - [ ] b. Re-refine

IX. Description of Hazardous Wastes *(Use additional sheets if necessary)*

A. Characteristics of Nonlisted Hazardous Wastes. *(Mark 'X' in the boxes corresponding to the characteristics of nonlisted hazardous wastes your installation handles; See 40 CFR Parts 261.20 - 261.24)*

1. Ignitable (D001)	2. Corrosive (D002)	3. Reactive (D003)	4. Toxicity Characteristic	(List specific EPA hazardous waste number(s) for the Toxicity characteristic contaminant(s))		
			X	D008		

B. Listed Hazardous Wastes. *(See 40 CFR 261.31 - 33; See instructions if you need to list more than 12 waste codes.)*

1	2	3	4	5	6
7	8	9	10	11	12

C. Other Wastes. *(State or other wastes requiring a handler to have an I.D. number; See instructions.)*

1	2	3	4	5	6

X. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature	Name and Official Title *(Type or print)*	Date Signed
[signature]	Steve Cohen Pres	9-25-95

XI. Comments

Waste is also a PCB - containing waste regulated under 40 CFR Part 761

Note: Mail completed form to the appropriate EPA Regional or State Office. *(See Section III of the booklet for addresses.)*

CIE

CHICAGO INTERNATIONAL
EXPORTING 4020 So. Wentworth Ave • Chicago, Ill. 60609

Exporters of Scrap Metals

312-924-4004 (Office)

FAX-312-924-4020
TELEX: 206748 Cgo-Int-Ex-Cgo
CABLE CODE: CHGO INLT. EX.

September 21, 1995

Mr. Jim Pierce
Illinois Environmental Protection Agency
Division of Land Pollution Control
2200 Churchill Road #24
Springfield, IL 62706

Dear Sir:

Please find enclosed the USEPA and IEPA applications being generated for a hazardous waste generator ID number. The waste is a characteristic hazardous waste (D008) for TCLP lead. It also contains more than 50 ppm of PCBs, so it is also regulated under 40 CFR Part 761.

If you have any questions, please do not hesitate to call.

Sincerely,

Steve Cohen
President

RECEIVED
OCT 02 1995
IEPA/DLPC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

1995

REPLY TO THE ATTENTION OF

HSE-5J

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Re:

Dear Sir or Madam:

Enclosed please find a Unilateral Administrative Order issued by the U.S. Environmental Protection Agency ("U.S. EPA") under Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 ("CERCLA"), 42 U.S.C. Section 9601, et seq.

Please note that the Order allows an opportunity for a conference if requested within 3 business days after issuance of the Order, or if no conference is requested, an opportunity to submit comments within 7 business days of issuance of the Order.

If you have any questions regarding the Order, feel free to contact Kurt Lindland, Assistant Regional Counsel, at (312) 886-6831 or Steve Faryan, On-Scene Coordinator, at (312) 353-9351.

Sincerely yours,

JoLynn Traub

for William E. Muno, Director
Waste Management Division

Enclosure

cc: Mr. Gary King, IEPA Superfund Coordinator

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

IN THE MATTER OF:	)	Docket No. V-W-'95-C-283
	)	
Standard Scrap Metal/Chicago International Exporting Site Chicago, Illinois	)	ADMINISTRATIVE ORDER PURSUANT TO SECTION 106(a) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980, AS AMENDED, 42 U.S.C. SECTION 9606(a), AND SECTION 7003 OF THE RESOURCE CONSERVATION AND RECOVERY ACT, AS AMENDED, 42 U.S.C. § 6973.
Respondents: Chicago International Exporting, Steven Cohen, Lawrence Cohen, Chicago International Chicago.	)	

I. JURISDICTION AND GENERAL PROVISIONS

This Order is issued pursuant to the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. § 9606(a), and Section 7003(a) of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act ("RCRA"), and further amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. § 6973, and delegated to the Administrator of the United States Environmental Protection Agency ("U.S. EPA") by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, and further delegated to the Regional Administrators by U.S. EPA Delegation Nos. 14-14-A and 14-14-B, and to the Director, Waste Management Division, Region 5, by Regional Delegation Nos. 14-14-A and 14-14-B, and Delegation Number 8-22-C on March 20, 1985.

This Order pertains to property located at 4004 through 4020 South Wentworth Avenue, and 4000 through 4027 South Wells Street (the "Standard Scrap Metal/Chicago International Exporting Site" or the "Site" or the "Facility"). This Order requires the Respondents to conduct removal activities described herein to abate an imminent and substantial endangerment to the public health, welfare or the environment that may be presented by the actual or threatened release of hazardous substances at or from the Site.

U.S. EPA has notified the State of Illinois of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a), and Section 7003(a) of RCRA, 42 U.S.C. § 6973.

II. PARTIES BOUND

This Order applies to and is binding upon Respondents and Respondents' heirs, receivers, trustees, successors and assigns. Any change in ownership or corporate status of Respondents including, but not limited to, any transfer of assets or real or personal property shall not alter such Respondents' responsibilities under this Order. Respondents are jointly and severally liable for carrying out all activities required by this Order. Compliance or noncompliance by one or more Respondents with any provision of this Order shall not excuse or justify noncompliance by any other Respondent.

Respondents shall ensure that their contractors, subcontractors, and representatives comply with this Order. Respondents shall be responsible for any noncompliance.

III. FINDINGS OF FACT

Based on available information, including the Administrative Record in this matter, U.S. EPA hereby finds that:

1. The Standard Scrap Metal/Chicago International Exporting Site ("SSM/CIE" or "Site") is located at 4004 through 4020 South Wentworth Avenue, and 4000 through 4027 South Wells Street, Chicago, Cook County, Illinois, Latitude 87° 37' 55" north, Longitude 41° 52' 50" west, in a mixed industrial and residential area. The facility is an active 3-acre scrap yard that reclaims copper and other scrap metal from electric motors. Past and present operations have taken place on two distinct parcels of property separated by Wells Street. The east lot is approximately 2.5 acres, and the west lot is approximately .5 acres. The west lot contains the active shredding and metals separation operations, and the east lot contains a scale for weighing incoming and outgoing trucks.

2. The Standard Metal Company ("SMC") was started in 1928 by Sam Cohen and Sam Kanter at 4004 South Wentworth Avenue. SMC was involved in reclaiming scrap metal, including aluminum and copper. The facility contained one gas-fired boiler, two aluminum sweat furnaces, and a wire burning incinerator. Operations continued until 1972 when the company merged into Standard Scrap Metal Company, Incorporated ("SSMCI"). The company went bankrupt in 1987, changed names to Phoenix Recycling, and continued in the metal reclamation business. The Phoenix Recycling business was owned by the Sam Cohen and Sam and Benjamin Kanter Building Partnership.

3. The SCM/CIE Site has been investigated by the Illinois Environmental Protection Agency ("IEPA"), and U.S. EPA beginning in 1973. In 1973, personnel from IEPA inspected the

Site for compliance with air pollution regulations. The inspection revealed that the facility did not have the proper air pollution permits to operate their incinerator or sweat furnaces. A suit (PCB 83-22) was filed against SSMCI for not possessing permits required by IEPA and the City of Chicago. The complaint stated that SSMCI could achieve compliance by installing afterburners on the sweat furnaces. The afterburners were not installed and permits were not applied for until 1984. A permit for the gas-fired boiler was applied for and approved on December 14, 1984.

4. On February 14, 1984, IEPA investigated the Standard Scrap facility, and analytical results indicated levels of polychlorinated biphenyls ("PCBs") up to 1,300 parts per million ("ppm") from the west lot. The IEPA requested that the U.S. EPA conduct a PCB inspection at the Site.

5. On February 14, 1984, IEPA also investigated a report from an employee of a nearby plant that workers at the facility periodically dumped transformer oil on the ground and ignited it. The employee stated that this practice took place from 1977 to 1981. On one occasion, and as a result of these practices, the roof of the Heatbath Corporation caught on fire, and was extinguished by the Chicago Fire Department.

6. On March 30, 1984, U.S. EPA's Toxic Substance Office conducted an inspection of the facility. Analytical results confirmed PCB levels of up to 2,095 ppm, and the facility was fined $25,000 for violating regulations pertaining to the improper disposal of PCBs.

7. On January 10, 1985, the Illinois Pollution Board ("IPB") continued the suit (PCB 83-22) against SSMCI for permit violations. The IPB suit ordered SSMCI to:

> Cease and desist from operations of its incinerator until the necessary operating permit is obtained from the IEPA; cease and desist from operating either of its aluminum sweat furnaces until the necessary permits are obtained from the IEPA, and permanently shut down the inactive aluminum sweat furnace by January 21, 1985.
>
> Install temperature gauges on each afterburner with an interlock that prevents operation unless the afterburner temperature is at least 1400 degrees Fahrenheit, and take all necessary steps to ensure adequate pre-heating of each afterburner prior to charging. These requirements are to be made conditions of the operating permits issued by the IEPA.
>
> Within 90 days of the date of this order pay a penalty of $30,000 for the violation of the Act and Regulations as described in this opinion.

8. On June 18, 1985, the U.S. EPA Technical Assistance Team ("TAT") contractor, collected four soil samples and two wipe samples from the east lot at the Site. The analytical results indicated PCB levels up to 336 ppm in three samples, and isomers of Dioxin were detected in all four samples. The inspection and data were referred to the U.S. EPA Toxic Substance Control Act ("TSCA") program for enforcement purposes.

9. On October 29, 1985, a complaint was filed by U.S. EPA against SSMCI. The complaint sought a $30,000 penalty for violations of Section 16(a) of TSCA. In February, 1987, SSMCI appealed the decision and the complaint was dismissed because U.S. EPA could not prove that the PCBs had been accepted at the Site after 1978; however, U.S. EPA appealed the dismissal, the decision was reversed, and the $30,000 fine was levied against the facility. SSMCI filed for bankruptcy, and the fine was never collected.

10. In 1989 the facility name was changed again to Chicago International Exporting ("CIE"). In the 1980's the facility was expanded to include property located at 4020 South Wentworth, Chicago, Illinois, which is owned and operated by Steven Cohen and Lawrence Cohen and is currently operated by Chicago International Chicago, Inc. The President of both Chicago International Exporting and Chicago International Chicago, Inc., Steve Cohen, and Lawrence Cohen actively manage the metals recycling business under the most recent name of Chicago International Chicago, Inc. The business is still actively reclaiming copper and other scrap from electric motors.

11. In 1990, a former railroad employee had a telephone interview with Tom Crause of IEPA. The former railroad employee indicated that workers at the Standard Scrap facility cut up and disposed of many electrical transformers during his 30 years of employment with the railroad. Based on the previous sampling indicating PCB contamination and this information, on August 27, 1990, the former SSMCI facility was placed on the Comprehensive Environmental Response, Compensation and Liability Information System ("CERCLIS").

12. On August 29, 1991, IEPA personnel conducted an off-site reconnaissance inspection of the facility. IEPA observed piles of scrap metal around the Site. No air emissions were observed at the Site, and the boiler did not appear to be in operation. At the east lot, the north sweat furnace had been demolished, and was left as a pile of debris. A number of drums, which appeared to be empty, were observed near the north side of the office building. No leakage was observed from the drums and no stressed vegetation was observed on the lot. At the west lot, the gates were open and the lot empty with the exception of three semi-trailers. The IEPA prepared

a Preliminary Assessment ("PA") for the Site on September 30, 1991.

13. On September 22, 1992, IEPA was tasked by U.S. EPA Region 5 to conduct a CERCLIS Screening Site Inspection ("SSI") of the Site. After the IEPA had been denied access to the site by the owners twice, the SSI was finally conducted on November 4 and 5, 1992, and consisted of the collection of twelve soil samples. The analytical results from sampling efforts indicated levels of PCBs above the TSCA regulatory level of 50 ppm and high levels of total lead levels above U.S. EPA health risk levels of 400 ppm. Samples collected by IEPA from the Main Yard showed PCB levels of 109 ppm and 60 ppm and samples from the West Yard showed PCB levels of 84 ppm, 547 ppm, 104 ppm and 1430 ppm. Lead levels were detected in ranging from 9,230 ppm to 23,000 ppm in the Main Yard and in the West Yard lead levels ranged from 547 to 1,430 ppm. The IEPA investigators observed the shredding of electric motors and separation of copper at the facility.

Interviews were conducted by IEPA inspector, Mr. Mark Weber, with a neighboring residence at 3953 S. Princeton who stated that material which looked like foil and other small particles which were brittle would cover his yard. The owner of the residence also stated that buring of wire and other debris was common.

14. On February 22, 1994, U.S. EPA performed a removal Site Assessment ("SA") at the Chicago Industrial Exporting Company facility. The facility and buildings were found to be in the same condition as in the previous inspections. The south boundary of the Site is located adjacent to a residential area within a highly populated area on the south side of Chicago, with residences located within 100 feet of the Site. The Site is bounded by railroad tracks on the east and north, and by the Heatbath Corp. on the west.

During the inspection it was confirmed that the shredding of electric motors and reclamation of copper are the primary operations at the Site. The owners and operators of the CIE business, Mr. Lawrence Cohen and Mr. Steven Cohen, were contacted by the U.S. EPA On-Scene Coordinator ("OSC") who requested and was given access to the Site. The facility continues to be split into two yards. The east lot is used to shred the electric motors, and separate the copper, scrap and fluff. The shredded metallic material is also separated from the non-metallic material in the east lot. While the facility claims that a baghouse dust control system will be installed on the shredding operation, which generates extreme amounts of dust during operations, no dust control equipment has been connected to that system to date. Mr. Lawrence Cohen stated that the unit was shut down during the inspection so that the dust would not impact sampling. The metallic material is then hauled into the main processing building where the copper is separated from the steel and other debris with an air-forced cyclone separator. The dust from this operation was directly vented out a window into the streets and sidewalks of neighboring residences with no dust or pollution control. The facility claims that some dust control has recently been connected to this system. However, as of the date of this Order, no such controls have been implemented. The OSC has referred this air compliance issue to IEPA, to the Cook County Air Board and to the City of Chicago.

Also, during the inspection, CIE workers were observed to burn wood and other debris in the east lot, and burning of wire in barrels was observed at the west lot. Later, CIE workers put out the burning wire with water from a hose. The materials burned in the 55-gallon drum gave off a black smoke that was irritating to the eyes, nose, and throat. A motor had been cut open and oil was observed spilling onto the soil of the east lot. The soil, debris, and reclaimed copper and metal were all observed to be coated in oil, and large oil stains were observed in both the east and west lots. An open ended pipe was observed exiting the building from the copper separation system, and a continuous release of dust was observed blowing directly into the neighboring residences.

15. To characterize the hazardous substances reported from earlier investigations, on February 22, 1994, U.S. EPA collected ten soil samples and analyzed them for total metals, Toxicity Characteristic Leaching Procedure ("TCLP") metals, PCBs, volatile compounds and base neutral acids, and Dioxin. The analytical information confirmed that the soil and debris found on-site are characteristic hazardous wastes by Resource Conservation and Recovery Act ("RCRA") definition and that the material is PCB contaminated under the Toxic Substances Control Act (TSCA). Nine of ten samples collected were above RCRA regulatory levels for lead, and two of the samples were above RCRA regulatory levels for cadmium. Nine of the ten samples collected were above the TSCA regulatory level of 50 ppm for PCBs. Samples S1, S2, S3 and S7 were all taken in the north end of the Main Yard and were all above the RCRA regulatory level of 5 mg/l of TCLP lead. In addition, samples S1, S2, S3, S7 and S10 were all above the TSCA regulatory level for PCBs of 50 ppm. Samples S4, S5, S8 and S9 were taken in the West Yard and analyzed, and were all above the RCRA regulatory level of 5 mg/l for lead. In addition, samples S4, S5, S6, S8 and S9 were all above the TSCA regulatory level of 50 ppm for PCBs. This data confirms that hazardous wastes and hazardous substances are spread over the entire Site, including soils, fluff piles, and scrap.

?

Representative?

16. The area directly underneath the shredding operations is concrete and pavement but a large part of the yard is soil. Waste fluff and debris and ash piles are found disposed of in

piles in the north part of the yard where the wire incinerator and building were demolished. A foundation remains of the demolished building, as does debris from the smoke stack from the incinerator. Two operating aluminum furnaces remain in the southern portion of the yard.

In addition, high PCB levels were detected in nine of the ten samples above the TSCA regulatory levels of 50 ppm. The samples ranged from 61 ppm to 2,000 ppm, confirming the three previous inspections by TSCA, IEPA, and TAT. Total metal values for lead, copper, and zinc were extremely high and above the health risk values, creating a high potential for ingestion and inhalation of airborne dust by neighboring residences, the public entering the Site, and by CIE employees.

Dioxin and Furans were detected in four samples, with two samples containing levels above the 1 ppm 2,3,7,8 Total Equivalency Factor risk-based level. The Dioxins and Furans were resultant of burning PCB-containing transformers and capacitors as reported to the IEPA by a nearby plant employee in February 1984. In addition, the burning of wire casings has been documented to create incomplete products of combustion including Dioxin and Furans, which are deposited in the air and into the ash.

17. Elevated levels of heavy metals such as cadmium, lead, zinc, and copper are known to be toxic to humans and animals. Exposure to lead may be especially hazardous to children, potentially causing a decrease in intelligence (IQ) scores, slowing of growth, liver and birth defects, and hearing problems. Neurobehavioral development in children may occur at blood lead levels so low as to be essentially without a threshold. The degree of uncertainty regarding the health effects caused by lead is low.

Inhalation of cadmium contaminated dust mainly affects the respiratory tract. Brief exposure to high concentrations of cadmium may result in pulmonary edema and death. Cadmium compounds are recognized carcinogens of the connective tissues, lungs, and liver.

18. PCBs are known potential carcinogens that bioaccumulate in humans and animals. Exposure to PCBs may cause liver damage, skin irritations, reproductive and developmental effects and cancer. PCBs are known to cause decreased birth weights in monkeys, as well as adverse learning deficits. Behavioral dysfunctions, including deficits in visual recognition and short term memory, have been observed in infants of human mothers who consumed fish contaminated with PCB mixtures of unknown composition. PCBs are recognized mutagens and potential carcinogens and can cause liver damage leading to death if severe.

19. EPA has developed a methodology to assess the toxicity of complex mixtures of dioxin congeners through the use of "toxic equivalency factors". These factors convert mixtures of congeners to a toxicologically equivalent amount of 2,3,7,8-TCDD. Mixtures of dioxin congeners can be quantified in terms of total dioxin or in terms of 2,3,7,8-TCDD toxicity, described as dioxin toxic equivalency (TEQ).

20. Based on available toxicity data and structure-activity comparisons with 2,3,7,8-TCDD, EPA considers all 2,3,7,8 dioxins and 2,3,7,8 polychlorinated dibenzofuran congeners as probable human carcinogens. Animal studies have demonstrated that dioxin at dosages in parts per trillion causes non-cancer effects, including adverse impacts on reproduction, immunology, liver, and growth processes. These studies and a limited number of studies of human exposure to dioxin suggest the potential for the same types of non-cancer effects in humans. Some of these adverse effects may be occurring at or within one order of magnitude of average TEQ intake or body burden levels.

21. On September 14, 1994, a Unilateral Administrative Order, Docket No. V-W-94-C-249 ("UAO") was issued to Respondents by U.S. EPA in response to the release or threat of release of hazardous substances at the Site. The UAO required Respondents to, <u>inter</u> <u>alia</u>, treat/dispose of all contaminated soils, solid waste material, and liquids at the Facility, restrict access, cease fugitive dust emissions from the metal shredder and separator, cease open burning, and conduct confirmation sampling. During a meeting on October 5, 1994, Respondent Steven Cohen indicated that Respondents would not be able to implement the actions identified in the UAO.

22. For purposes of further defining the extent of contamination at the Site, and to begin the removal action, U.S. EPA requested access during a meeting with Respondents on October 5, 1994, and again by telephone on or about October 7 and 10th, 1994.

23. By letter dated October 11, 1994, Respondents refused to allow U.S. EPA access to the site except with respect to a small portion near the north end of the east lot and to the west lot where trailers and other equipment are located.

24. On or about October 17, 1994, U.S. EPA collected soil and solid waste samples from the small portion of the Site where access was allowed. Results of that sampling indicate that material processed through Respondents' metal shredding operation contains concentrations of PCBs at 170 ppm, and that samples from the shredder belt contain PCBs at 270 ppm, and that samples from a debris pile which included material not yet shredded, and apparently destined for shredding, contains PCBs at 124 ppm and TCLP lead at 8.5 ppm. Additional results

O.K. But Solid waste is
re cycled, (i.e. also Scrap not regulated) 0

from soil samples taken at the Site on or about October 20, 1994, indicate soil contamination with PCBs at 201 ppm and TCLP lead concentrations at 37 ppm.

25. By letter dated October 18, 1994, Respondents indicated they do not intend to comply with the UAO.

26. In order to perform sampling and other activities identified in the UAO on the entire site, and to otherwise respond to the release or threat of release of hazardous substances from the entire site, U.S. EPA issued an Administrative Order for access Docket No. VW-95-C-266 ("Access Order") which was signed on November 1, 1994, and effective on November 7, 1994, to Respondents.

27. By letter dated November 7, 1994, Respondents indicated they did not intend to comply with the Access Order by the effective date.

28. On November 18, 1994, U.S. EPA obtained a court order allowing U.S. EPA access to the south portion of the east lot for sampling.

29. Between November 21, 1994, and the date of this Order, U.S. EPA collected additional soil and shredded electric motor samples, including soil samples from beneath concrete pads, and samples from within the gravity separator building. Results of that sampling indicate contamination of up to 1271 ppm PCBs in the soil, shredded electric motors, and gravity separator system. In addition, sample results indicate high levels of lead which exceed the RCRA regulatory limit of 5 mg/l TCLP were detected in soil above and beneath the concrete pads, and in shredded and unshredded motor piles. Other samples of shredded and unshredded motors indicated contamination of up to 1737 ppm PCBs, and elevated levels of lead above the RCRA regulatory limit of 5 mg/l TCLP at the Facility. Samples of material processed through Respondents' shredding operation indicated that Respondents are generating material contaminated with up to 1051 ppm PCBs and 1470 ppm total lead. Samples from dust and debris generated by the shredding and metal separating process indicate that Respondents' metal shredding and metal separating operations are causing a release of hazardous substances including PCBs which have been found in shredded material up to 1,851 ppm, and total lead at levels up to 32,000 ppm.

30. Between November 25, 1992, and November 15, 1994, U.S. EPA has conducted air inspections and conducted visible emission readings from the metal separator and shredder. Based on those inspections and emission readings, U.S. EPA issued a Notice of Violation under the Clean Air Act to Respondents dated December 16, 1994, citing various violations

of the Clean Air Act due to Respondents' metal shredding and sorting operations at the Facility.

31. EPA is currently conducting a removal action, as authorized by the Action Memorandum dated September 22, 1994, at the Facility, where access has not been denied, to abate the threat to public health, welfare or the environment posed by the Facility, as set forth in the Action Memorandum. The Action Memorandum sets forth the actions authorized at the Facility which include, implementing a sampling plan across the entire site to determine the nature and extent of contamination, excavation/disposal of all soils and solid waste contaminated with PCBs which exceed 10 ppm, and/or concentrations of lead which exceed 5 milligrams per liter (mg/l) TCLP and 500 ppm total lead, and or concentrations of cadmium which exceed 1 mg/l TCLP, and/or concentrations of Dioxin which exceed 1 ppb 2,3,7,8-TCDD total equivalency, and/or concentrations of any other hazardous substance found on Site which exceeds the applicable Federal clean-up standards. All such contaminated soil and solid waste is or shall be treated/disposed at a RCRA/TSCA-approved disposal facility.

IV. **CONCLUSIONS OF LAW AND DETERMINATIONS**

Based on the Findings of Fact set forth above, and the Administrative Record supporting these removal actions, U.S. EPA determines that:

1. The Standard Scrap Metal/Chicago International Exporting Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

2. PCBs, lead, cadmium, and Dioxin are "hazardous substances" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

3. Each Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21), and by Section 1004(15) of RCRA, 42 U.S.C. § 6903(15).

4. Respondents Chicago International Exporting, Chicago International Chicago, Mr. Steven Cohen, and Mr. Lawrence Cohen are the present "owners" and "operators" of the Standard Scrap Metal/Chicago International Exporting Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20). Respondents are therefore liable persons under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

5. The conditions described in the Findings of Fact above constitute an actual or threatened "release" into the "environment" as defined by Sections 101(8) and (22) of CERCLA, 42 U.S.C. §§ 9601(8) and (22) of hazardous substances.

6. The conditions present at the Site constitute a threat to public health, welfare, or the environment based upon the factors set forth in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ("NCP"), 40 CFR Part 300. These factors include, but are not limited to, the following:

a. actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants;

this factor is present at the Site due to the existence of high levels of PCB's, lead, cadmium and Dioxin that are present at the surface and subsurface in soils and solid waste material at the Site. The contaminated soil is a hazardous waste, as defined by RCRA. Analytical results have confirmed TCLP metals, cadmium at 1.3 milligrams per liter ("mg/l"), and lead at 71 mg/l. The RCRA limits for cadmium and lead are 1.0 and 5.0 mg/l, respectively. Total PCBs were detected in on-site soils at up to 1851 ppm and in on-site solid waste at up to 1737 ppm. The TSCA regulatory level for PCBs is 50 ppm. The PCBs can be directly associated with past activities at the Site as reported by a nearby plant employee, and a former railroad employee, as well as with current Site activities as confirmed by solid waste samples and soil samples from shredded material and debris on the belt of the shredder. The current practice of shredding electric motors causes releases of PCB's from the electrical capacitors inside the motors. The Agency for Toxic Substances and Disease Registry ("ATSDR") considers 1 microgram per kilogram ("ug/kg") (2,3,7,8-TCDD equivalence) of Dioxin in soil to be a level of concern in residential areas. Sample results from on-site soils have confirmed Dioxin levels of 4.004 ug/kg (2,3,7,8-TCDD equivalence). The proximity to residences and the observed releases of dust and smoke from the burning of wire and debris present a direct contact threat to hazardous substances. In addition, the threat of direct contact to hazardous substances to the public dropping off scrap, and to the CIE workers is evident.

b. high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;

this factor is present at the Site due to the existence of high levels of heavy metals that are above RCRA limits for cadmium and lead. High levels of copper, lead and zinc have been identified through soil sampling, and visible emissions of 70% were observed by a U.S. EPA certified emission reader, releasing off-site when the shredding and separation operations are in progress. Sample results from material in the cyclone metal separator indicate that dust from the shredder and separator is contaminated with up to 913 ppm of

PCBs and 3,000 ppm of lead and 220 ppm cadmium. The dust, fluff, tin foil, mica and other contaminated components have been observed releasing from the site into the neighborhood, and street, and exposing the workers during the shredding and separation operations. In addition, the soils contain Dioxins found in concentrations greater than health based levels of 1 ug/kg using the 2,3,7,8 total equivalency factors. The potential for migration of contaminants from the facility exists due to wind blown dust, and dust from the shredding and separation operations, and potential dust emissions from open burning. Rain can also cause run-off of contaminants from the Site onto the street and into the residential neighborhood. In addition, the shredding and separation operations produce a tremendous amount of dust during operations which can migrate off-site. Observed releases of dust to the neighboring residences were documented during the U.S. EPA's site inspection.

c. weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

this factor is present at the Site due to the existence of high levels of lead, cadmium, PCBs and Dioxin which can migrate off-site via surface run-off. In addition, the dry and windy weather causes contaminated soils and non-metallic fluff to release to the neighboring residences via dust-blown particles. The release of dust was observed by the U.S. EPA during the inspection on February 22, 1994, and on other occasions to the present.

d. the unavailability of other appropriate federal or state response mechanisms to respond to the release;

this factor supports the actions required by this Order at the Site. The Site was referred to U.S. EPA by the IEPA and the City of Chicago.

e. other situations or factors that may pose threats to public health or welfare or the environment;

this factor is present at the Site due to the existence of observed releases of contaminated dust and shredded material from the shredding and separation of electrical motor components, and due to open burning of wire and other materials. These components often contain PCBs and high levels of heavy metals. The facility had no pollution control equipment on the shredding and separation equipment; shredding and copper separation systems are continuously releasing contaminated dust, fluff, foil, mica and other contaminated shredded components directly to the sidewalk, street, and residences via a duct which leads outside the main building. Potentially contaminated dust from the shredding and separation operations is continuously being released from the facility and has been observed and documented to be impacting the neighboring residences.

7. The actual or threatened release of hazardous substances from the Site may present an imminent and substantial endangerment to the public health, welfare, or the environment within the meaning of Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

8. The removal actions required by this Order are necessary to protect the public health, welfare, or the environment, and are not inconsistent with the NCP and CERCLA.

9. The waste material stored, handled and disposed of by Respondents' as a result of their metal shredding and metal separating processes is "solid waste", as that term is defined at Section 1004(27) of RCRA, 42 U.S.C. §6903(27).

10. Solid wastes have been and are presently being transported to and from, handled, stored, and disposed of at the Facility.

11. Respondents' past and/or present handling, storage, treatment, transportation, and/or disposal of solid waste at the Facility presently results in PCB, lead, and cadmium emissions from the Facility which may present an imminent and substantial endangerment to health or the environment within the meaning of Section 7003(a) of RCRA, 42 U.S.C. § 6973(a). Respondents are contributing to handling, storage, treatment, transportation, or disposal of such solid waste within the meaning of Section 7003(a) of RCRA, 42 U.S.C. § 6973(a).

12. The actions required by this Order are necessary to protect public health and the environment, based on the foregoing Findings of Fact, Conclusions of Law and Determinations.

V. ORDER

Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, U.S. EPA hereby orders that Respondents perform the following actions:

1. Notice of Intent to Comply

Respondents shall notify U.S. EPA in writing within 3 business days after the effective date of this Order of Respondents' irrevocable intent to comply with this Order. Failure of each Respondent to provide such notification within this time period shall be a violation of this Order.

2. Designation of Contractor, Project Coordinator, and On-Scene Coordinator

Respondents shall perform the removal actions themselves or retain contractors to implement the removal actions. Respondents shall notify U.S. EPA of Respondents' qualifications or the name and qualifications of such contractors, whichever is applicable, within 5 business days of the effective date of this Order. Respondents shall also notify U.S. EPA of the name and qualifications of any other contractors or subcontractors retained to perform work under this Order at least 5 business days prior to commencement of such work. U.S. EPA retains the right to disapprove of the Respondents or any of the contractors and/or subcontractors retained by the Respondents. If U.S. EPA disapproves a selected contractor, Respondents shall retain a different contractor within 2 business days following U.S. EPA's disapproval and shall notify U.S. EPA of that contractor's name and qualifications within 3 business days of U.S. EPA's disapproval.

Within 5 business days after the effective date of this Order, the Respondents shall designate a Project Coordinator who shall be responsible for administration of all the Respondents' actions required by the Order and submit the designated coordinator's name, address, telephone number, and qualifications to U.S. EPA. To the greatest extent possible, the Project Coordinator shall be present on site or readily available during site work. U.S. EPA retains the right to disapprove of any Project Coordinator named by the Respondents. If U.S. EPA disapproves a selected Project Coordinator, Respondents shall retain a different Project Coordinator within 3 business days following U.S. EPA's disapproval and shall notify U.S. EPA of that person's name and qualifications within 4 business days of U.S. EPA's disapproval. Receipt by Respondents' Project Coordinator of any notice or communication from U.S. EPA relating to this Order shall constitute receipt by all Respondents.

The U.S. EPA has designated Steve Faryan of the Emergency and Enforcement Response Branch, Region 5, as its On-Scene Coordinator ("OSC"). Respondents shall direct all submissions required by this Order to the OSC at 77 West Jackson Boulevard, HSE-5J, Chicago, Illinois, 60604-3590, by certified or express mail. Respondents shall also send a copy of all submissions to Kurt Lindland, Assistant Regional Counsel, 200 West Adams Street, CS-29A, Chicago, Illinois, 60606. All Respondents are encouraged to make their submissions to U.S. EPA on recycled paper (which includes significant post consumer waste paper content where possible) and using two-sided copies.

3. Work to Be Performed

Respondents shall perform, at a minimum, the following response activities:

a. Cease any operations at the Facility which releases or causes a threat of release of any hazardous substance into the air or onto the surface of the Facility unless and until Respondents install and implement dust emission control equipment sufficient to ensure that there will be no such release, or threat of release of hazardous substances.

b. For as long as the metal shredding and separating process is operated at the Facility, conduct weekly sampling of each waste stream from the metal shredder and the metal cyclone separator, including, without limitation, scrap steel, copper fines, fluff, dust, and cyclone separator discharge, for PCBs and TCLP metals.

c. For as long as the metal shredding and metal cyclone separating process is operated at the Facility, conduct daily air sampling at the perimeter of the site for PCBs and total metals.

d. Prepare and submit a sampling plan to U.S. EPA to conduct the sampling required by paragraphs 3b. and 3c. above, identifying standard operating procedures and methods for all sample collection and analysis, and reporting.

Within 10 business days after the effective date of this Order, the Respondents shall submit to U.S. EPA for approval a draft Work Plan for performing the removal activities set forth above. The draft Work Plan shall provide a description of, and an expeditious schedule for, the activities required by this Order.

3.1 Quality Assurance and Sampling

All sampling and analyses performed pursuant to this Order shall conform to U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control ("QA/QC"), data validation, and chain of custody procedures. Respondents shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with U.S. EPA guidance. Upon request by U.S. EPA, Respondents shall have such a laboratory analyze samples submitted by U.S. EPA for quality assurance monitoring. Respondents shall provide to U.S. EPA the quality assurance/quality control procedures followed by all sampling teams and laboratories performing data collection and/or analysis. Respondents shall also ensure provision of analytical tracking information consistent with OSWER Directive No. 9240.0-2B, "Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites."

Upon request by U.S. EPA, Respondents shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by Respondents or their contractors or agents while performing work under this Order. Respondents shall notify U.S. EPA not less than 3 business days in advance of any sample collection activity. U.S. EPA shall have the right to take any additional samples that it deems necessary.

3.2 Reporting

Respondents shall submit a weekly written progress report to U.S. EPA concerning activities undertaken pursuant to this Order, beginning 7 calendar days and every 7 calendar Days after the date of U.S. EPA's approval of the Sampling Plan, until termination of this Order, unless otherwise directed by the OSC. These reports shall describe all significant developments during the preceding period, including the work performed and any problems encountered, analytical data received during the reporting period, and developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

Any Respondent that owns any portion of the Site, and any successor in title shall, at least 30 days prior to the conveyance of any interest in real property at the Site, give written notice of this Order to the transferee and written notice of the proposed conveyance to U.S. EPA and the State. The notice to U.S. EPA and the State shall include the name and address of the transferee. The party conveying such an interest shall require that the transferee will provide access as described in Section V.4 (Access to Property and Information).

4. Access to Property and Information

Respondents shall provide or obtain access as necessary to the Site, including the West Yard, and the entire Main Yard (a.k.a East Yard), and all areas connecting the West and Main Yard, and shall provide access to all records and documentation related to the conditions at the Site and the activities conducted pursuant to this Order. Such access shall be provided to U.S. EPA employees, contractors, agents, consultants, designees, representatives, and State of Illinois representatives. These individuals shall be permitted to move freely at the Site and appropriate off-site areas in order to conduct activities which U.S. EPA determines to be necessary. Respondents shall submit to U.S. EPA, upon request, the results of all sampling or tests and all other data generated by Respondents or their contractors, or on the Respondents' behalf during implementation of this Order.

Where work under this Order is to be performed in areas owned by or in possession of someone other than Respondents, Respondents shall obtain all necessary access agreements within 14 calendar days after the effective date of this Order, or as otherwise specified in writing by the OSC. Respondents shall immediately notify U.S. EPA if, after using their best efforts, they are unable to obtain such agreements. Respondents shall describe in writing their efforts to obtain access. U.S. EPA may then assist Respondents in gaining access, to the extent necessary to effectuate the response activities described herein, using such means as U.S. EPA deems appropriate.

5. Record Retention, Documentation, Availability of Information

Respondents shall preserve all documents and information relating to work performed under this Order, or relating to the hazardous substances found on or released from the Site, for six years following completion of the removal actions required by this Order. At the end of this six year period and at least 60 days before any document or information is destroyed, Respondents shall notify U.S. EPA that such documents and information are available to U.S. EPA for inspection, and upon request, shall provide the originals or copies of such documents and information to U.S. EPA. In addition, Respondents shall provide documents and information retained under this Section at any time before expiration of the six year period at the written request of U.S. EPA.

6. Off-Site Shipments

All hazardous substances, pollutants or contaminants removed off-site pursuant to this Order for treatment, storage or disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by U.S. EPA, with the U.S. EPA Revised Off-Site Rule, 40 CFR § 300.440, 58 Federal Register 49215 (Sept. 22, 1993).

7. Compliance With Other Laws

All actions required pursuant to this Order shall be performed in accordance with all applicable local, state, and federal laws and regulations except as provided in CERCLA Section 121(e) and 40 CFR Section 300.415(i). In accordance with 40 CFR Section 300.415(i), all on-site actions required pursuant to this Order shall, to the extent practicable, as determined by U.S. EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws.

8. Emergency Response and Notification of Releases

If any incident, or change in Site conditions, during the activities conducted pursuant to this Order causes or threatens to cause an additional release of hazardous substances from the Site or an endangerment to the public health, welfare, or the environment, the Respondents shall immediately take all appropriate action to prevent, abate or minimize such release, or endangerment caused or threatened by the release. Respondents shall also immediately notify the OSC or, in the event of his/her unavailability, shall notify the Regional Duty Officer, Emergency and Enforcement Response Branch, Region 5 at (312) 353-2318, of the incident or Site conditions.

Respondents shall submit a written report to U.S. EPA within 7 business days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. Respondents shall also comply with any other notification requirements, including those in CERCLA Section 103, 42 U.S.C. § 9603, and Section 304 of the Emergency Planning and Community Right-To-Know Act, 42 U.S.C. § 11004.

VI. AUTHORITY OF THE U.S. EPA ON-SCENE COORDINATOR

The OSC shall be responsible for overseeing the implementation of this Order. The OSC shall have the authority vested in an OSC by the NCP, including the authority to halt, conduct, or direct any work required by this Order, or to direct any other response action undertaken by U.S. EPA or Respondents at the Site. Absence of the OSC from the Site shall not be cause for stoppage of work unless specifically directed by the OSC.

U.S. EPA and Respondents shall have the right to change their designated OSC or Project Coordinator. U.S. EPA shall notify the Respondents, and Respondents shall notify U.S. EPA, as early as possible before such a change is made, but in no case less than 24 hours before such a change. Notification may initially be made orally, but shall be followed promptly by written notice.

VII. PENALTIES FOR NONCOMPLIANCE

Violation of any provision of this Order may subject Respondents to civil penalties of up to $25,000 per violation per day, as provided in Section 106(b)(1) of CERCLA, 42 U.S.C. § 9606(b)(1). Respondents may also be subject to punitive damages in an amount up to three times the amount of any cost incurred by the United States as a result of such violation, as provided in Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Should Respondents violate this Order or any portion hereof, U.S. EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, and/or may seek judicial enforcement of this Order pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606.

VIII. REIMBURSEMENT OF COSTS

Respondents shall reimburse U.S. EPA, upon written demand, for all response costs incurred by the United States in overseeing Respondents' implementation of the requirements of this Order.

U.S. EPA may submit to Respondents on a periodic basis a bill for all response costs incurred by the United States with respect to this Order. U.S. EPA's Itemized Cost Summary, or such other summary as certified by U.S. EPA, shall serve as the basis for payment.

Respondents shall, within 30 days of receipt of the bill, remit a cashier's or certified check for the amount of those costs made payable to the "Hazardous Substance Superfund," to the following address:

U.S. Environmental Protection Agency
Superfund Accounting
P.O. Box 70753
Chicago, Illinois 60673

Respondents shall simultaneously transmit a copy of the check to the Director, Waste Management Division, U.S. EPA Region 5, 77 West Jackson Boulevard, Chicago, Illinois, 60604-3590. Payments shall be designated as "Response Costs - Standard Scrap Metal/Chicago International Exporting Site" and shall reference the payors' name and address, the U.S. EPA site identification number HQ, and the docket number of this Order.

Interest at a rate established by the Department of the Treasury pursuant to 31 U.S.C. § 3717 and 4 CFR § 102.13 shall begin to accrue on the unpaid balance from the day after the expiration of the 30 day period notwithstanding any dispute or an objection to any portion of the costs.

IX. <u>RESERVATION OF RIGHTS</u>

Nothing herein shall limit the power and authority of U.S. EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent U.S. EPA from seeking legal or equitable relief to enforce the terms of this Order. U.S. EPA also reserves the right to take any other legal or equitable action as it deems appropriate and necessary, or to require the Respondents in the future to perform additional activities pursuant to CERCLA or any other applicable law.

X. <u>OTHER CLAIMS</u>

By issuance of this Order, the United States and U.S. EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondents. The United States or U.S. EPA shall not be a party or be held out as a party to any contract entered into by the Respondents or their directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out activities pursuant to this Order.

This Order does not constitute a pre-authorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2).

Nothing in this Order constitutes a satisfaction of or release from any claim or cause of action against the Respondents or any person not a party to this Order, for any liability such person may have under CERCLA, other statutes, or the common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106(a) or 107(a) of CERCLA, 42 U.S.C. §§ 9606(a), 9607(a).

XI. MODIFICATIONS

Modifications to any plan or schedule may be made in writing by the OSC or at the OSC's oral direction. If the OSC makes an oral modification, it will be memorialized in writing within 7 business days; however, the effective date of the modification shall be the date of the OSC's oral direction. The rest of the Order, or any other portion of the Order, may only be modified in writing by signature of the Director, Waste Management Division, Region 5.

If Respondents seek permission to deviate from any approved plan or schedule, Respondents' Project Coordinator shall submit a written request to U.S. EPA for approval outlining the proposed modification and its basis.

No informal advice, guidance, suggestion, or comment by U.S. EPA regarding reports, plans, specifications, schedules, or any other writing submitted by the Respondents shall relieve Respondents of their obligations to obtain such formal approval as may be required by this Order, and to comply with all requirements of this Order unless it is formally modified.

XII. NOTICE OF COMPLETION

After submission of the Final Report, Respondents may request that U.S. EPA provide a Notice of Completion of the work required by this Order. If U.S. EPA determines, after U.S. EPA's review of the Final Report, that all work has been fully performed in accordance with this Order, except for certain continuing obligations required by this Order (e.g., record retention), U.S. EPA will provide notice to the Respondents. If U.S. EPA determines that any removal activities have not been completed in accordance with this Order, U.S. EPA will notify the Respondents, provide a list of the deficiencies, and require that Respondents modify the Work Plan to correct such deficiencies. The Respondents shall implement the modified and approved Work Plan and shall submit a modified Final Report in accordance with the U.S. EPA notice. Failure to implement the approved modified Work Plan shall be a violation of this Order.

XIII. ACCESS TO ADMINISTRATIVE RECORD

The Administrative Record supporting these removal actions is available for review during normal business hours in the U.S. EPA Record Center, Region 5, 77 W. Jackson Boulevard, Seventh Floor, Chicago, Illinois. Respondents may contact Kurt Lindland, Assistant Regional Counsel, at (312) 886-6831 to arrange to review the Administrative Record. An index of the Administrative Record is attached to this Order.

XIV. OPPORTUNITY TO CONFER

Within 3 business days after receipt of this Order, Respondents may request a conference with U.S. EPA. Any such conference shall be held within 5 business days from the date of the request, unless extended by agreement of the parties. At any conference held pursuant to the request, Respondents may appear in person or be represented by an attorney or other representative.

If a conference is held, Respondents may present any information, arguments or comments regarding this Order. Regardless of whether a conference is held, Respondents may submit any information, arguments or comments in writing to U.S. EPA within 2 business days following the conference, or within 7 business days of issuance of the Order if no conference is requested. This conference is not an evidentiary hearing, does not constitute a proceeding to challenge this Order, and does not give Respondents a right to seek review of this Order. Requests for a conference shall be directed to Kurt Lindland, Assistant Regional Counsel, at (312) 886-6831. Written submittals shall be directed as specified in Section V.2 of this Order.

XV. SEVERABILITY

If a court issues an order that invalidates any provision of this Order or finds that Respondents have sufficient cause not to comply with one or more provisions of this Order, Respondents shall remain bound to comply with all provisions of this Order not invalidated by the court's order.

XVI. EFFECTIVE DATE

This Order shall be effective 10 business days following issuance unless a conference is requested as provided herein. If a conference is requested, this Order shall be effective 5 business days after the day of the conference.

IT IS SO ORDERED

BY: ______________________ DATE: 2/16/95

William E. Muno, Director
Waste Management Division
United States
Environmental Protection Agency
Region 5

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION
ADMINISTRATIVE RECORD FOR 106 ORDER
STANDARD SCRAP METAL/CHICAGO INTERNATIONAL EXPORTING
CHICAGO, ILLINOIS
01/25/95

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1	00/00/00	U.S. EPA/Integrated Risk Information System		Information re: Reference Dose for Chronic Oral Exposure for Lead and Compounds, PCBs, Aroclor 1016, and Cadmium	15
2	00/00/75	Sax, I.		Excerpts from "Dangerous Properties of Industrial Materials" (4th Edition)	7
3	09/09/86	Moore, J., U.S. EPA	Allen, T., Piper & Marbury	Letter re: Interpretations Under TSCA Rules for Polychlorinated Biphenyls	3
4	06/00/90	U.S. Department of Health and Human Services/NIOSH		Tables: Excerpts from "Guide to Chemical Hazards"	4
5	11/05/92	U.S. EPA		Sampling Team Handwritten Notes From November 4-5, 1992	16
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7	00/00/94	U.S. EPA		News Release: EPA Continues Cleanup (DRAFT)	2
8	05/06/94	Ecology and Environment, Inc.	U.S. EPA	Site Assessment Report	149
9	07/13/94	Lindland, K., U.S. EPA	Cohen, L., Chicago International Exporting	Letter re: Export of Materials	3
10	07/14/94	OSWER/U.S. EPA	U.S. EPA	Memorandum re: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities (OSWER Directive 9355.4-12)	8
11	09/06/94	Cohen, S., Chicago International Chicago, Inc.	Regel, D., U.S. EPA	Response to 104(e) Request w/Attachments	26
12	09/14/94	Faryan, S., U.S. EPA	Adamkus, V., U.S. EPA	Action Memorandum: Request for a Twelve Month and $2 Million Dollar Exemption for the Time Critical Removal Action	15
13	09/14/94	U.S. EPA	Respondents	Unilateral Administrative Order w/Attached Sample Cover Letter	24
14	09/29/94	U.S. EPA		ERCS U.S. EPA Region 5 Work Plan Outline w/Attachments	18

DOC#	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
15	10/11/94	Shining, C.	Lindland, K., U.S. EPA	Letter re: Request for Access	1
16	10/12/94	Lindland, K., U.S. EPA	Shining, C.	Letter re: Refusal to Provide Access to the U.S. EPA for Sampling and Other Necessary Actions w/Attached Site Map	3
17	10/18/94	Shining, C.	Lindland, K., U.S. EPA	Letter re: Respondent's Intent to Comply with the Section 106 Order	2
18	10/27/94	Lindland, K., U.S. EPA	Cohen, S. and Cohen, L., Chicago International Exporting	Letter re: Preliminary Sampling Results	3
19	10/31/94	Shining, C.	Lindland, K., U.S. EPA	Letter re: Preliminary Results of Samples Taken October 5, 1994 w/Attachement	3
20	11/02/94	Lindland, K., U.S. EPA	Respondents	Administrative Order Directing Compliance with Request for Access w/Attached List of Respondents and Cover Letter	19
21	11/04/94	Muno, W., U.S. EPA	Shining, C.	First Amendment to Unilateral Administrative Order w/Attached Cover Letter	5
22	11/07/94	Nassif, J., Coburn Croft	Lindland, K., U.S. EPA	Letter re: Questions and Comments in Reply to U.S. EPA's Letter of October 27, 1994 w/Attachment	8
23	11/14/94	Faryan, S., U.S. EPA	U.S. District Court	Declaration in Support of Motion for an Immediate Order in Aid of Access	14
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25	11/22/94	Faryan, S., U.S. EPA	Addressees	Memorandum: POLREP #1	4
26	11/22/94	Karl, R., U.S. EPA	Cohen, L. c/o Shining, C.	Removal of "Bud" Cohen from the PRP List	2
27	11/30/94	Ecology and Environment, Inc.	U.S. EPA	Sampling QA/QC Work Plan	256
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29	12/02/94	Riedel Environmental Services, Inc.	U.S. EPA	Chain of Custody Records and Laboratory Reports for Samples Received November 22, 1994	206
30	12/05/94	Faryan, S., U.S. EPA	Addressees	Memorandum: POLREP 2	3
31	12/07/94	Lindland, K., U.S. EPA	Nassif, J., Coburn Croft	Letter re: Removal of PCB Contaminated Material	3
32	12/09/94	Faryan, S., U.S. EPA	Addressees	Memorandum: POLREP #3	3
33	12/16/94	Kee, D., U.S. EPA	Cohen, S. and Cohen L., Chicago International Exporting	Letter Forwarding Attached Notice of Violation	6
34	12/16/94	Faryan, S., U.S. EPA	Addressees	Memorandum: POLREP #4	2
35	01/05/95	Lindland, K., U.S. EPA	Nassif, J., Coburn Croft	Letter re: Steps to be Taken by Owners / Operators to Continue U.S. EPA's Removal Action	4
36	01/07/95	Faryan, S., U.S. EPA	Addressees	Memorandum: POLREP #5	4
37	01/12/95	Lindland, K., U.S. EPA	Nassif, J., Coburn Croft	Letter re: On Going Removal Actions w/Attachments	9
38	01/12/95	Faryan, S., U.S. EPA	Cohen, L. and Cohen, S., Chicago International Exporting	Letter re: U.S. EPA's Notification of Materials and Equipment to be Relocated to Facilitate the On Going Removal Action	2
39	01/13/95	Faryan, S., U.S. EPA	Addressees	Memorandum: POLREP #6	2
40	01/19/95	U.S. EPA		Standard Community Relations Plan	3

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LIABILITY INDEX

	DOCUMENT TYPE	DATE	AUTHOR
1.	Site Assessment Report	5/6/94	Ecology & Environment
2.	Dunn & Brad Street Report	5/20/94	Dunn & Brad Street
3.	Information Request	6/30/94	U.S. EPA
4.	Telephone Log	7/19/94	U.S. EPA
5.	Information Request	7/28/94	U.S. EPA
6.	Information Request Response	8/10/94	LaSalle Banks
7.	Information Request	8/17/94	Cole Taylor Bank
8.	Information Request Follow-up	8/18/94	U.S. EPA
9.	Information Request	8/24/94	U.S. EPA
10.	Information Request Partial Response	9/6/94	Steven Cohen
11.	Information Request Follow-up	10/6/94	U.S. EPA
12.	Letter	10/12/94	U.S. EPA
13.	Memorandum	10/14/94	U.S. EPA

STANDARD SCRAP METAL/CHICAGO INTERNATIONAL EXPORTING SITE
LIST OF RESPONDENTS RECEIVING UNILATERAL ADMINISTRATIVE ORDER

Chicago International Exporting
c/o Carolin K. Shining, Esq.
Three First National Plaza
Suite 1960
Chicago, Illinois 60601-1210

Mr. Steven Cohen
c/o Carolin K. Shining, Esq.
Three First National Plaza
Suite 1960
Chicago, Illinois 60601-1210

Mr. Lawrence Cohen
c/o Carolin K. Shining, Esq.
Three First National Plaza
Suite 1960
Chicago, Illinois 60601-1210

Chicago International Chicago, Inc.
c/o Carolin K. Shining, Esq.
Three First National Plaza
Suite 1960
Chicago, Illinois 60601-1210

Also to:

Chicago International Exporting
4020 South Wentworth Avenue
Chicago, Illinois 60609

Mr. Steven Cohen
4020 South Wentworth Avenue
Chicago, Illinois 60609

Mr. Lawrence Cohen
4020 South Wentworth Avenue
Chicago, Illinois 60609

Chicago International Chicago, Inc.
4020 South Wentworth Avenue
Chicago, Illinois 60609

bcc: Docket Analyst, ORC (CS-3T)
Kurt Lindland, ORC (CS-3T)
Steve Faryan (HSE-5J)
Jose Cisneros, ESS (HSE-5J)
Debbie Regel, ESS (HSE-5J)
Oliver Warnsley, CRS (HSM-5J)
Toni Lesser, Public Affairs (P-19J) w/out attachments
Don Henne, Department of Interior
Tony Audia (MF-10J)
EERB Site File
EERB Read File

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS

UNITED STATES OF AMERICA, Plaintiff, v. STEVEN COHEN, LAWRENCE A. COHEN CHICAGO INTERNATIONAL CHICAGO, INC., AND CHICAGO INTERNATIONAL EXPORTING, Defendants.	Civil Action No.

DECLARATION IN SUPPORT OF MOTION
FOR AN IMMEDIATE ORDER IN AID OF ACCESS

I, Steven J. Faryan, in accordance with 28 U.S.C. § 1746, declare as follows:

1. I am employed by the United States Environmental Protection Agency ("EPA"), Region 5, at 77 West Jackson Blvd., Chicago, Illinois, and have been employed by EPA from July 1986 to the present. During my EPA employment, I have worked as an Environmental Scientist in the Emergency and Enforcement Response Branch as an On-Scene Coordinator ("OSC") in the Office of Superfund of EPA.

2. I am a resident of the State of Illinois. I received a B.A. degree from Southern Illinois University in Biological Sciences in 1981. From that date until accepting a job with EPA, I was a Field Chemist at Jacobs Engineering.

3. The Emergency and Enforcement Response Branch is charged with the responsibilities assigned to EPA by the Comprehensive Environmental Response, Compensation and Liability

Exh. 1

Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601 et seq. Regulations promulgated under CERCLA and implemented by EPA include the establishment of a National Contingency Plan, 40 C.F.R. Part 300 ("NCP").

4. Under the NCP, the Emergency Enforcement Response Branch at Region 5 EPA investigates and responds to releases and threatened releases of hazardous substances, pollutants, and contaminants with the States of Illinois, Ohio, Indiana, Michigan, Wisconsin, and Minnesota. The OSC is responsible for the development and implementation of response activities needed to mitigate such releases and threatened releases. As a regular part of those duties, the OSC maintains regular business records of the status of response investigations and activities with respect to a given site and reviews them for their accuracy.

5. Since July 1986, I have been an OSC at approximately 50 sites including the Standard Scrap Metal/Chicago International Exporting Facility, located at 4004 through 4020 South Wentworth and 4000 through 4027 South Wells Street, Chicago, Illinois ("SSM/CIE Facility" or "Facility").

6. As an OSC for the SSM/CIE Facility I have regularly visited the Facility. This declaration is based on previous visits to the Facility, analytical results derived from samples taken between February 1994 and the present, and my knowledge and review of the files pertaining to the Facility maintained at Chicago, Illinois, office of EPA Region 5, including the Administrative Record for the Facility.

7. The SSM/CIE Facility includes a scrap metal shredding operation. Chicago International Chicago, Inc. (f.k.a Chicago International Exporting) operates the facility located at 4004 through 4020 South Wentworth and 4000 through 4027 South Wells Street, Chicago, Illinois, which shreds electric motors. A title search was conducted by U.S. EPA and revealed that the Facility property is held in trust by a bank and that the beneficiary's to the trust are Steven and Lawrence Cohen. (See Exhibit A of this Declaration). Based on several visits to the facility, I observed that Steven and Lawrence Cohen manage the Facility, including its day-to-day operations. Operations at the facility began in 1928 under separate ownership. The south boundary of the Facility is located near a residential area within a highly populated area on the south side of Chicago, with an auto parts dealer and residences located within 100 feet of the Facility. The Facility is bounded by railroad tracks on the east and north, and by the Heatbath Corp. on the west. Residences are also located on the north side of the railroad tracks which border the north side of the Facility. The Facility includes several buildings, various sheds, a scrap metal shredder, a copper separator system, aluminum furnaces, a scale, an office building, and several piles of debris and scrap metal. (See Exhibit C at 8 to this Declaration).

8. On September 22, 1992, Illinois Environmental Protection Agency ("IEPA") was tasked by U.S. EPA Region 5 to conduct a CERCLIS Screening Facility Inspection ("SI") of the

Facility. (See Exhibit B to this Declaration). The SI was conducted on November 4 and 5, 1992, and consisted of the collection of twelve soil samples. The analytical results from on-site soil sampling indicated PCBs up to 670,000 parts per billion ("ppb").

9. On February 22, 1994, U.S. EPA performed a removal Site Assessment ("SA") at the SSM/CIE Facility. (See Exhibit C to this Declaration). During the inspection, U.S. EPA confirmed that the shredding of electric motors and reclamation of copper are the primary operations at the Facility. On that day, I contacted the owners and operators of the Chicago International Chicago, Inc. business (f.k.a. Chicago International Exporting), Mr. Steven Cohen, and Mr. Lawrence Cohen and was given access to the Facility. I observed that the facility was split into two yards. The east lot is used to shred the electric motors, and separate the copper, scrap and fluff. The shredded metallic material is also separated from the non-metallic material in the east lot. I observed that the west lot contains a scale and several empty semi-trailers. I also observed that the west lot also contains several piles of ash and other assorted waste material. I observed that no dust control equipment was connected to the shredding operation. Mr. Lawrence Cohen stated that the shredding unit was shut down during the inspection so that the dust would not impact sampling. I was told by Lawrence Cohen that the metallic material is then hauled into the main processing building where the copper is separated from the steel

and other debris with an air-forced cyclone separator. I observed that the dust from this operation was directly vented out a window into the streets and sidewalks of neighboring residences with no dust or pollution control. I have referred this air compliance issue to the Illinois Environmental Protection Agency, to the Cook County Air Board and to the City of Chicago.

I also observed that the soil, debris, and reclaimed copper and metal were coated in oil, and large oil stains were located in both the east and west lots, including the south portion of the east lot. The east lot encompasses approximately 2.5 acres and the west lot encompasses approximately .5 acres. Also, I observed piles of unshredded motors, containers of shredded metal material, and open burning on the south portion of the east lot. I observed an open ended pipe exiting the building from the copper separation system, which is located on the south portion of the east lot, and a continuous release of dust was blowing directly into the neighboring residences from that system.

10. Under my supervision and at the request of EPA, ten soil samples were collected from the Facility and analyzed for total metals, Toxicity Characteristic Leaching Procedure ("TCLP") metals, PCBs, volatile compounds and base neutral acids, and Dioxin.

11. I reviewed the analytical information from Huntingdon Laboratory which confirmed that the soil and debris found on-site contains hazardous substances as defined by CERCLA and are

hazardous by Resource Conservation and Recovery Act ("RCRA") definition. Nine of ten samples collected were above RCRA regulatory TCLP level of 5 ppm for lead ranging from 5.3 to 71 parts ppm, and two of the samples were up to 1.3 ppm which is above the RCRA regulatory levels for cadmium of 1 ppm. This data confirms that hazardous wastes are spread over the entire Facility, including soils, fluff piles, and scrap. Based upon my review of EPA guidance documents and toxicology manuals published by the Agency for Toxic Substances and Disease Registry, elevated levels of heavy metals such as cadmium, lead, zinc, and copper are toxic to humans and animals. Exposure to lead may be especially hazardous to children, potentially causing a decrease in intelligence (IQ) scores, slowing of growth, liver and birth defects, and hearing problems.

The sample results from Huntingdon Laboratory indicate that high PCB levels were detected in nine of the ten samples above the TSCA regulatory levels of 50 ppm. The samples ranged from 61 ppm to 2,000 ppm, confirming three previous inspections. Total metal values for lead, copper, and zinc were extremely high and above the health risk values, creating a high potential for ingestion and inhalation of airborne dust by neighboring residences, the public entering the Facility, and by Facility employees. Based upon my review of EPA human health risk guidance documents and toxicology manuals published by the Agency for Toxic Substances and Disease Registry, PCBs are potential carcinogens that bioaccumulate in humans and animals. Exposure to PCBs may cause liver damage, skin irritations, reproductive and developmental effects and cancer.

Dioxin and Furans were detected in all four samples, with two samples containing levels up to 4 ppb, which is above the 1 ppb 2,3,7,8 Total Equivalency Factor risk-based level which is the threshold level for residential areas established by the Agency For Toxic Substances Disease Registry. Id.

12. On September 22, 1994, an Action Memorandum was issued by the Director of Waste Management Division, U.S. EPA, Region 5, authorizing a removal action at the SSM/CIE Facility. (See Exhibit D to this Declaration). Among other determinations, the Action Memorandum provides that, "actual or threatened release of hazardous substances from the site (SSM/CIE Facility), if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment". The Action Memo authorized EPA to "[i]mplement a sampling plan and characterize all waste for disposal of all hazardous wastes of hazardous substances identified at the Facility" and to "treat and/or dispose of all contaminated soils at an [approved] facility". When implemented, those actions will address the release or threatened release of hazardous substances at the SSM/CIE Facility, within the meaning of Sections 101(25) and 104 of CERCLA, 42 U.S.C. §§ 9601(25) and 9604. Due to EPA funding constraints, an Action Memorandum could not be approved before September 22, 1994 for the SSM/CIE Facility.

13. On September 14, 1994, a Unilateral Administrative Order, Docket No. V-W-94-C-249 ("Removal Order"), as amended, was issued to Defendants by U.S. EPA in response to the release or threat of release of hazardous substances at the Facility. (See Exhibit E to this Declaration). The Removal Order required Defendants to implement the work identified in the Action Memorandum, which included, inter alia, sampling and disposing and/or treating all contaminated soil and debris from the Facility, restricting site access, and implementing dust control measures to eliminate fugitive dust emissions from further contaminating the Facility and surrounding area.

14. Defendants indicated during a meeting with EPA on October 5, 1994 and by letter dated October 18, 1994 that they do not intend to comply with that Order. (See Exhibit F to this Declaration). Defendants have not complied with the Removal Order to date.

15. When respondents to a unilateral administrative order, such as defendants, refuse to implement removal activities under such an order, or otherwise fail to comply with such an order, under Section 106 of CERCLA U.S. EPA may implement the actions identified in the Action Memorandum and any other actions necessary to respond to the release or threat of release of hazardous substances from the Facility.

16. On several occasions I requested access from defendant Lawrence Cohen, and/or from other representatives of defendant Chicago International Chicago, Inc. to the south portion of the

east lot, which comprises approximately 1.2 acres of the entire 3 acre site, in order to implement the actions authorized by the Action Memorandum. On each such occasion defendants denied my request for access. By letter dated October 11, 1994, Respondents refused U.S. EPA's request for access to the south portion of the east lot of the Facility. (See Exhibit G to this Declaration). I was given access to the west lot and the north portion of the east lot on the site for sampling and other response actions authorized by the Action Memorandum and identified in the Removal Order.

17. On October 17, 1994, additional samples were taken from the portion of the Facility where access was allowed. Results from those samples indicate that shredded copper material from the facility's shredding operation is contaminated with PCBs at 170 ppm and material off the belt of the shredder is contaminated with PCBs at 270 ppm. In addition, sample results from a pile of debris, which included unshredded motors, were contaminated with PCBs at 124 ppm and TCLP lead at 8.5 ppm. (See Exhibit H of this Declaration). Also, based on recent Facility visits, I observed that no dust control measures have been implemented on the shredder or the copper separation process except that dust from the copper separation process is vented onto the Facility instead of into the street and directly into the surrounding neighborhood. Due to the large amount of dust generated by both the shredder and copper separation process, wind blows the dust around the facility, including onto the south portion of the east

lot, and from the facility into the surrounding neighborhood. Recently on November 9 and 10, 1994, I observed direct discharges of dust, aluminum foil, and other particulate matter from the copper separator into the street covering vehicles parked nearby.

18. On October 17, 1994, and other times while at the Facility, I observed that the metal shredder, which is the primary piece of machinery at the facility, lies directly on the line which defendants claim distinguishes the southern portion of the east lot from the rest of the Facility. (See Exhibit L to this Declaration, Site Survey). I also observed on several occasions that there is no fence or other physical boundary separating the north and south portions of the east lot, and that the north and south portions are used at the facility together as a single lot. I have also observed that shredded material is pushed and trucked from one end of the east lot to the other, including the south portion of that lot. Every time a truck or vehicle passes between the north and south portions of the east lot, the threat of a release of hazardous substances occurs due to dust blowing and contaminated soil sticking to the truck wheels. I have also observed that portions of the Facility which have not yet been sampled, including the south portion of the east lot, contain scrap metal piles, broken electric motors, dirt and debris piles, oil stained soil and debris, and other material which may cause a release or present a threat of release of hazardous substances from the Facility. In addition, employees of defendant Chicago International Chicago, Inc. indicated to me

on at least on occasion that capacitors are removed from electric motors on the south portion of the east lot and stored there in 55 gallon drums. Based on my experience as an OSC, capacitors from electric motors are known to contain PCB contaminated oil.

19. While visiting the facility I have also observed oil stains and debris on the ground on the south portion of the east lot which are indistinguishable from the nature of the oil stains and debris found on the north portion of the east lot.

20. I have also observed that the Facility accepts shredded motors and other material from an outside source and re-processes that material through defendants shredding operation. I observed that piles of the shredded motors are stored on the south portion of the east lot before being processed through the shredding system. Based on sampling data from shredded material at the facility, storage of such material on the south portion of the east lot constitutes a release or threat of release of hazardous substances.

21. On several occasions I have observed the public, including, transients and neighboring residents enter the south portion of the east lot. I have observed that residents continually walk between the east and west lots down Wells Street near the exhaust vent from the copper separator. Also, while removing debris from the west lot, I observed that abandoned trailers on the west lot of the Facility were being used by transients as a residence.

22. In an effort to gain access to the entire Facility so that EPA, including its contractors may conduct necessary sampling of the entire Facility, and to allow U.S. EPA to implement all other response actions identified in the Removal Order and the Action Memorandum, and any other actions necessary to respond to the release or threat of release of hazardous substances from the Facility, EPA issued an Administrative Order for Access to Defendants on November 1, 1994, effective November 7, 1994 ("Access Order"). (See Exhibit I to this Declaration). As of November 7, 1994, Respondents have indicated that they do not intend to comply with the Access Order and have otherwise refused access to EPA. (See Exhibit J to this Declaration).

23. In order to address the release or threatened release of hazardous substances at the SSM/CIE Facility, EPA is currently conducting a response action within the meaning of Sections 101(25) and 104 of CERCLA, 42 U.S.C. §§ 9601(25) and 9604. Currently, EPA is conducting sampling on the west lot, as authorized by the Action Memorandum. Beginning on November 17, 1994, EPA will begin sampling on the east lot. (See Exhibit M to this Declaration, Sampling Plan). Therefore, access to the south portion of that lot is necessary to begin response actions on the east lot, as authorized by the Action Memorandum. EPA will begin treating and/or disposing of contaminated soil and material from the west lot as authorized by the Action Memorandum and identified in the Removal Order beginning November 21, 1994, and

will treat and/or dispose of contaminated soil and material from the east lot after sampling there is complete.

24. If EPA is not allowed access to the south portion of the east lot, the necessary response actions can not be completed at the Facility and the substantial threat of release of hazardous substances into the environment will continue to pose an "imminent and substantial endangerment to public health."

25. The environmental contamination at the SSM/CIE Facility presents an imminent and substantial endangerment to the public health, welfare and the environment arising from the actual release or threat of release of hazardous substances from the Facility, including lead, PCBs, cadmium and Dioxin in the soil and solid waste. Section 106 of CERCLA authorizes emergency response to abate that threat. Environmental contamination and public health risks are likely to increase without immediate access to identify and remove contamination at the SSM/CIE Facility.

26. Access to the SSM/CIE Facility is necessary to perform sampling and other removal and response actions identified in the Action Memorandum and is authorized by Section 104 of CERCLA. I estimate that EPA will require approximately six months to complete those actions.

27. I declare under penalty of perjury that the foregoing is true and accurate to the best of my knowledge and belief. Executed this 14th day of November 1994.

Steven J. Faryan
On-Scene Coordinator
U.S. EPA, Region 5

L0316610037 Cook Co.
Standard Scrap Metal
ILD 045698253
SI/HRS

CERCLA

Screening Site Inspection Report

Illinois Environmental Protection Agency
P.O. Box 19276
Springfield, IL 62794-9276

Printed on Recycled Paper

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VOLUME II - SCREENING SITE INSPECTION ANALYTICAL RESULTS

SECTION 1

INTRODUCTION

On September 22, 1992, the Illinois Environmental Protection Agency's (IEPA) Site Assessment Unit was tasked by Region V of the United States Environmental Protection Agency (U.S. EPA) to conduct a CERCLA Screening Site Inspection (SSI) of Standard Scrap Metal located on the south side of Chicago, Illinois.

Standard Scrap was initially placed on the Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) on August 27, 1990. This action was the result of the IEPA's concern of potential exposure of hazardous wastes to the population and environment.

Standard Scrap Metal received its initial CERCLA evaluation in the form of a Preliminary Assessment (PA) completed by a representative of the IEPA in September of 1991. In October of 1992, the IEPA's Site Assessment Unit prepared and submitted a Screening Site Inspection work plan for Standard Scrap Metal to the Region V office of the U.S. EPA. The Screening Site Inspection sampling was conducted by the IEPA on November 4 and 5, 1992 which consisted of the collection of a total of 12 soil samples.

The purposes of a Screening Site Inspection have been stated by the U.S. EPA in a directive outlining Site Assessment

Program strategies. The directive states:

> All sites will receive a screening SI to:
>
> 1) Collect additional data beyond the PA to enable a more refined preliminary HRS [Hazard Ranking System] score.
>
> 2) Establish priorities among sites most likely to qualify for the NPL [National Priorities List].
>
> 3) Identify the most critical data requirements for the Listing SI step. A screening SI will not have rigorous data quality objectives (DQOs). Based on the refined preliminary HRS score and other technical judgement factors, the site will then either be designated as NFRAP [no further remedial action planned], or carried forward as an NPL listing candidate. A Listing SI will not automatically be done on these sites, however. First, they will go through a management evaluation to determine whether they can be addressed by another authority such as RCRA [Resource Conservation and Recovery Act]. Sites that are designated NFRAP or deferred to other statutes are not candidates for a Listing SI.
>
> The Listing SI will address all the data requirements of the revised HRS using field screening and NPL level DQOs. It may also provide needed data in a format to support remedial investigation work plan development. Only sites that appear to score high enough for listing and that have not been deferred by another authority will receive a Listing SI (U.S. EPA 1988).

Region V of the U.S. EPA has also requested that the IEPA identify sites during the Screening Site Inspection that may require removal action to remediate an immediate human health or environmental threat.

SECTION 2

SITE BACKGROUND

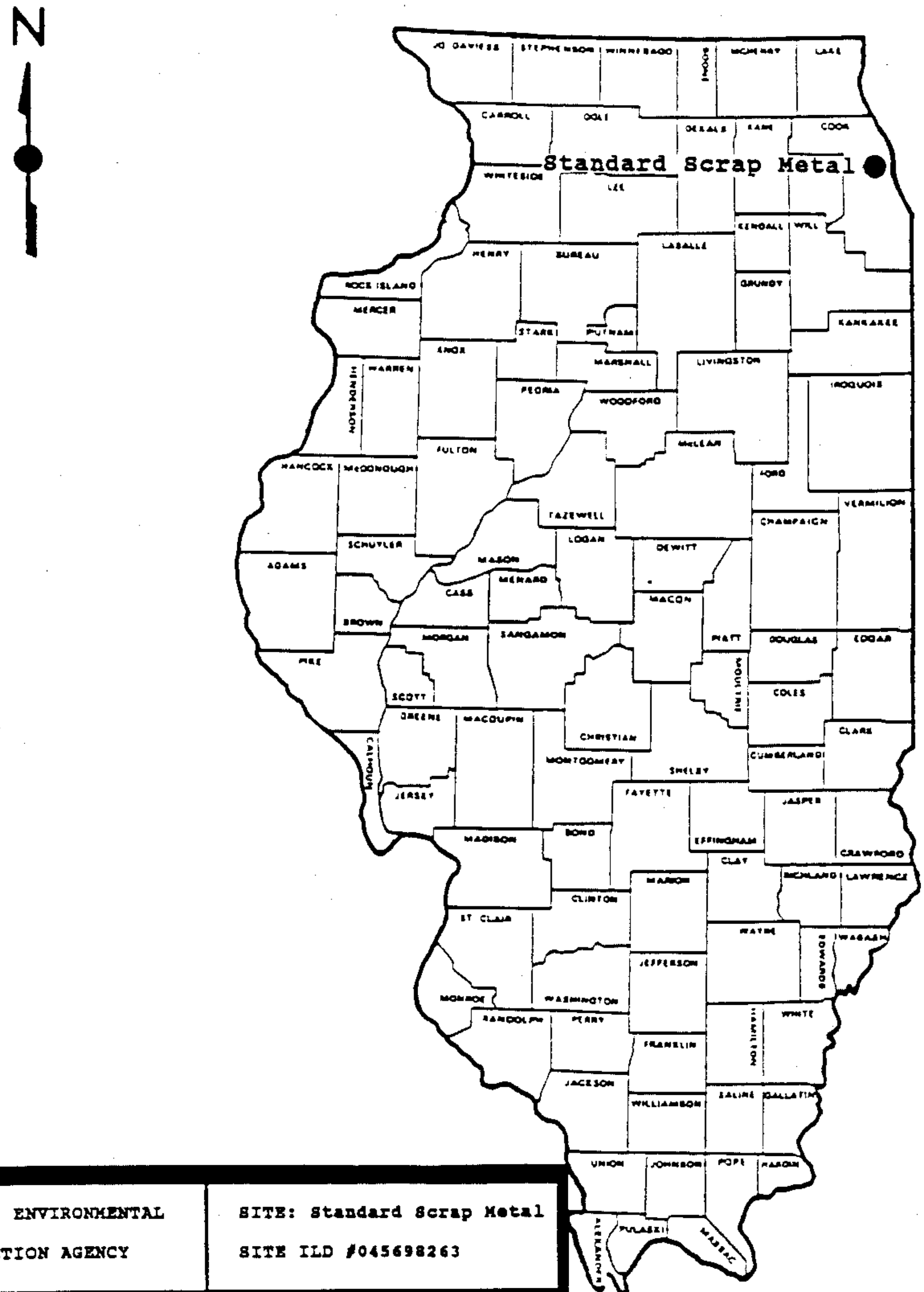
2.1 INTRODUCTION

This section includes information obtained over the course of the formal CERCLA Screening Site Inspection investigation and previous U.S. EPA and IEPA activities involving Standard Scrap Metal.

2.2 SITE DESCRIPTION

Standard Scrap Metal is a three acre scrap yard involved in the reclamation of metals. Past and present operations have taken place on two distinct parcels of property separated by Wells Avenue. The west lot is approximately .5 acres in size and the east lot is approximately 2.5 acres. The site is located in the northeast quarter of Section 4, Township 38 North, Range 14 East of the Third Principal Meridian, Cook County. A 4-mile radius map of the area surrounding Standard Scrap can be found in Appendix A of this report.

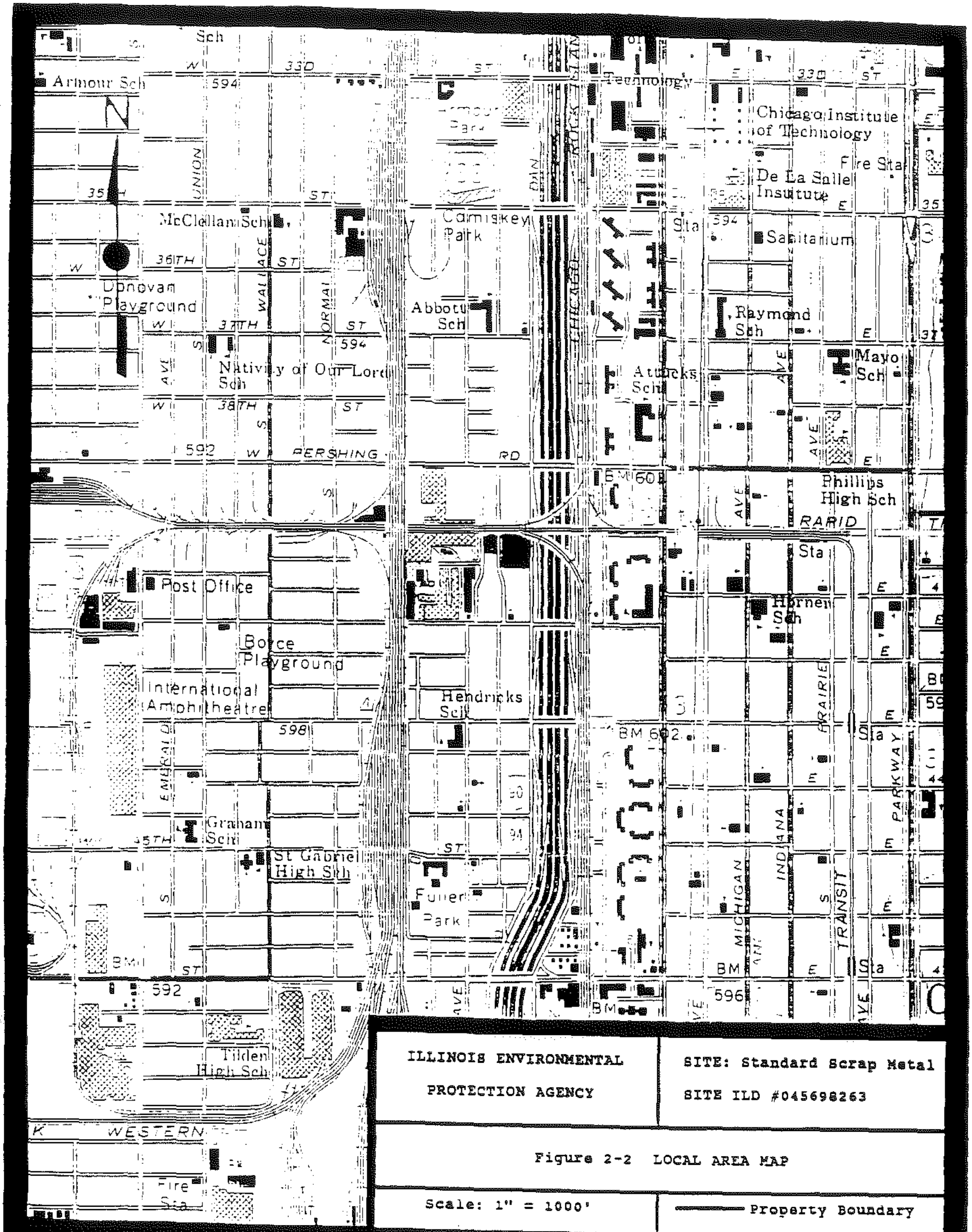
The mailing address given for Standard Scrap Metal is 4004 South Wentworth Avenue. It is located west of Interstate 90-94 (Dan Ryan Expressway), one block south of Pershing Road, east of Princeton Road, and one block north of Root Street. The site is located in a densely populated urbanized section on the south side of Chicago, Illinois. The surrounding area is primarily residential with housing projects and other



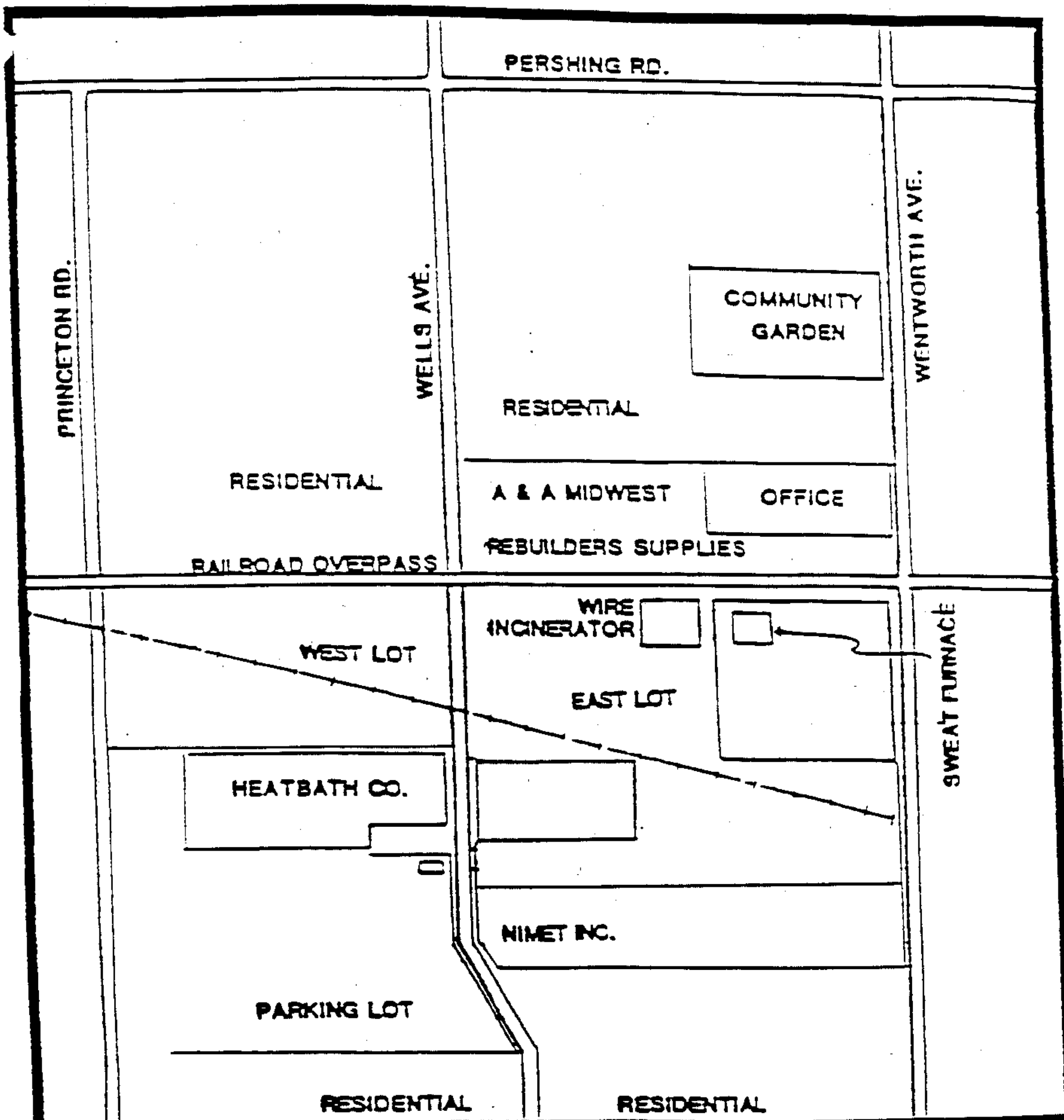
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY	SITE: Standard Scrap Metal SITE ILD #045698263

Figure 2-1 ILLINOIS STATE MAP

LEGEND: ● Site Location



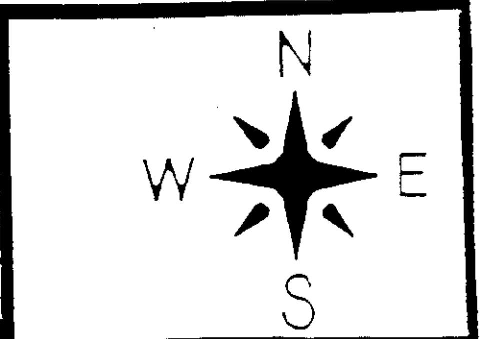
Source: USGS 7.5 Minute Topographic Maps for Englewood, IL, 1982, and Jackson Park, IL-IN, 1972.

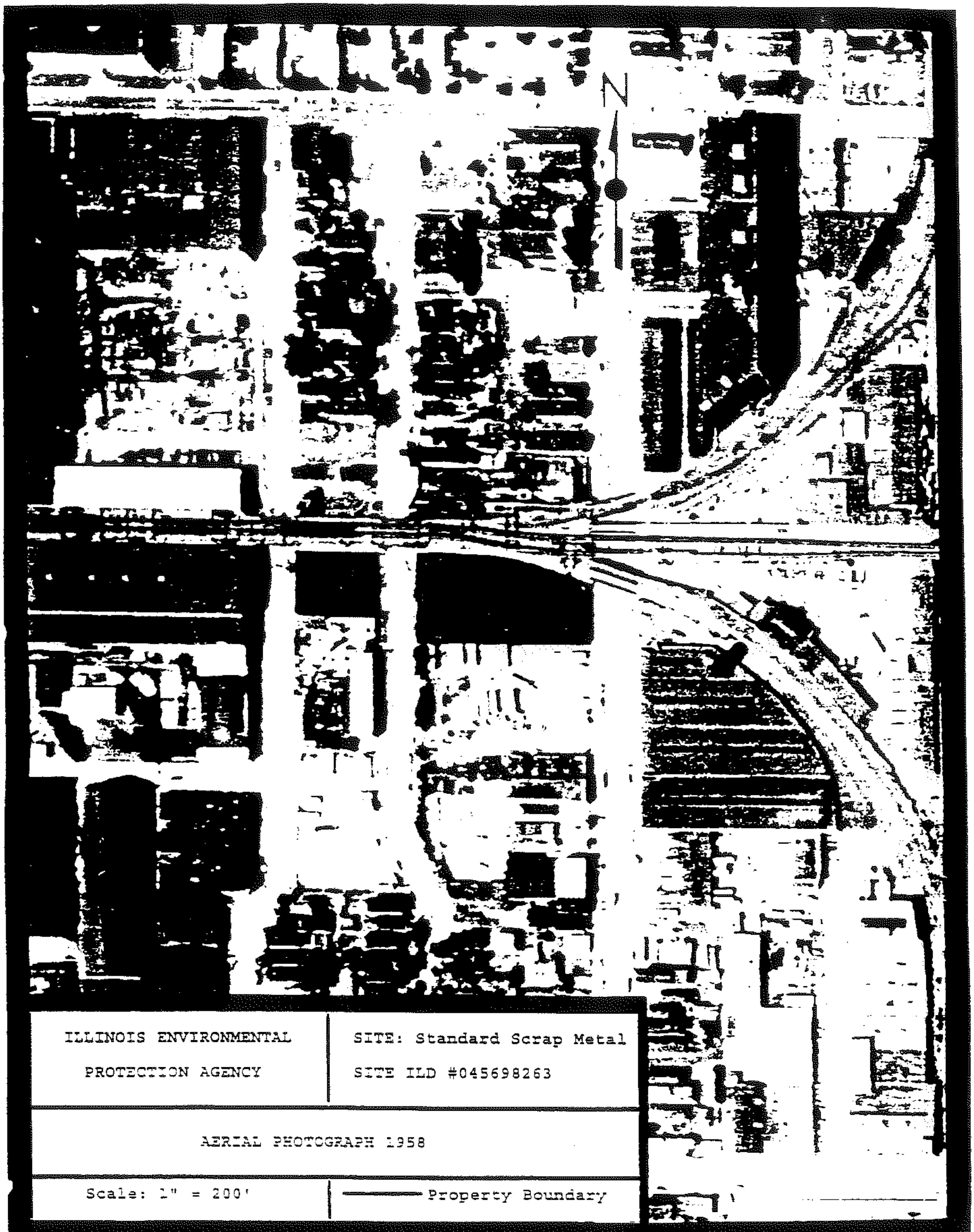


ILLINOIS ENVIRONMENTAL PROTECTION AGENCY	SITE: Standard Scrap Metal SITE ILD #045698263

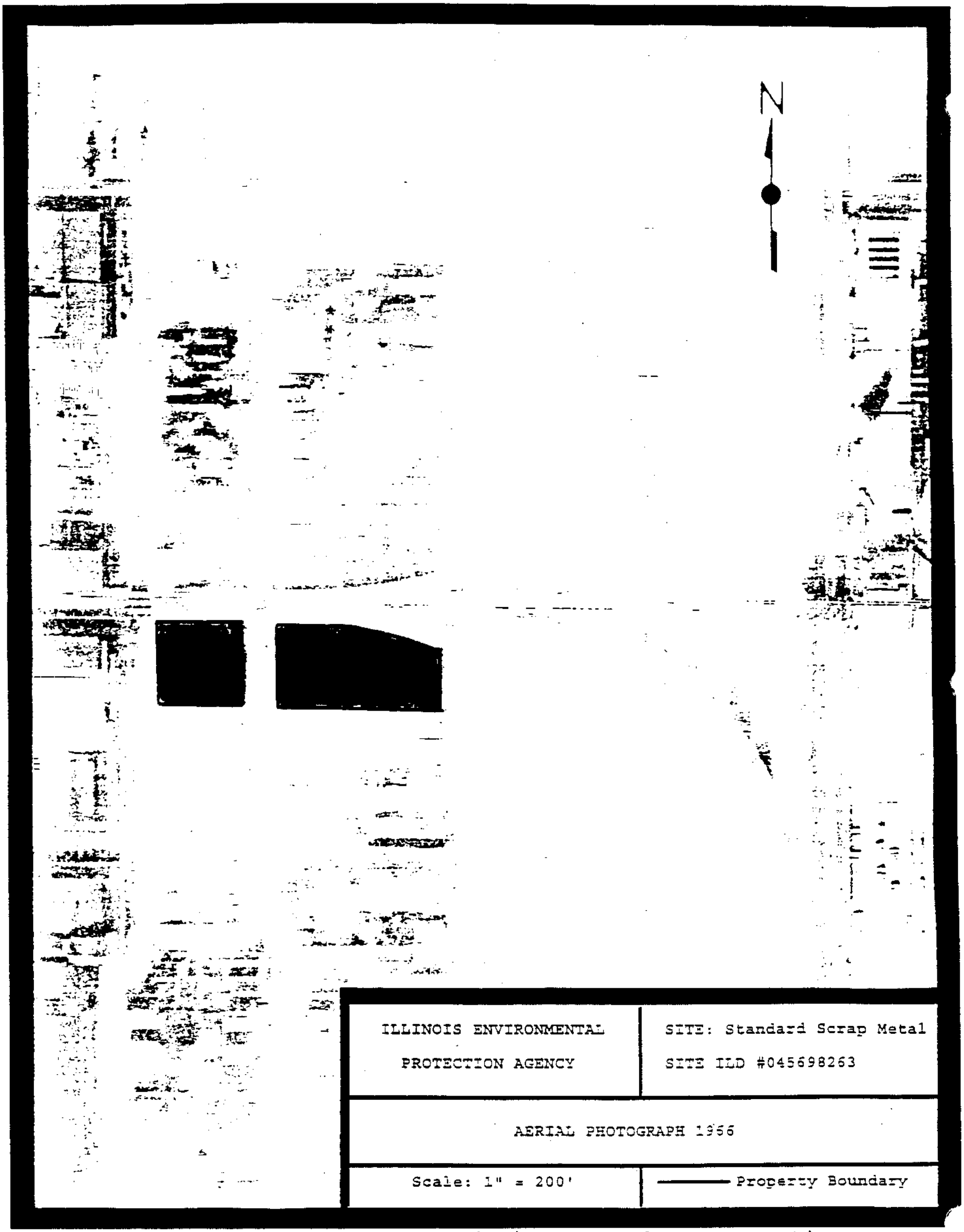
Figure 2-3 FACILITY MAP

Base Map: Roy F. Weston, Inc.

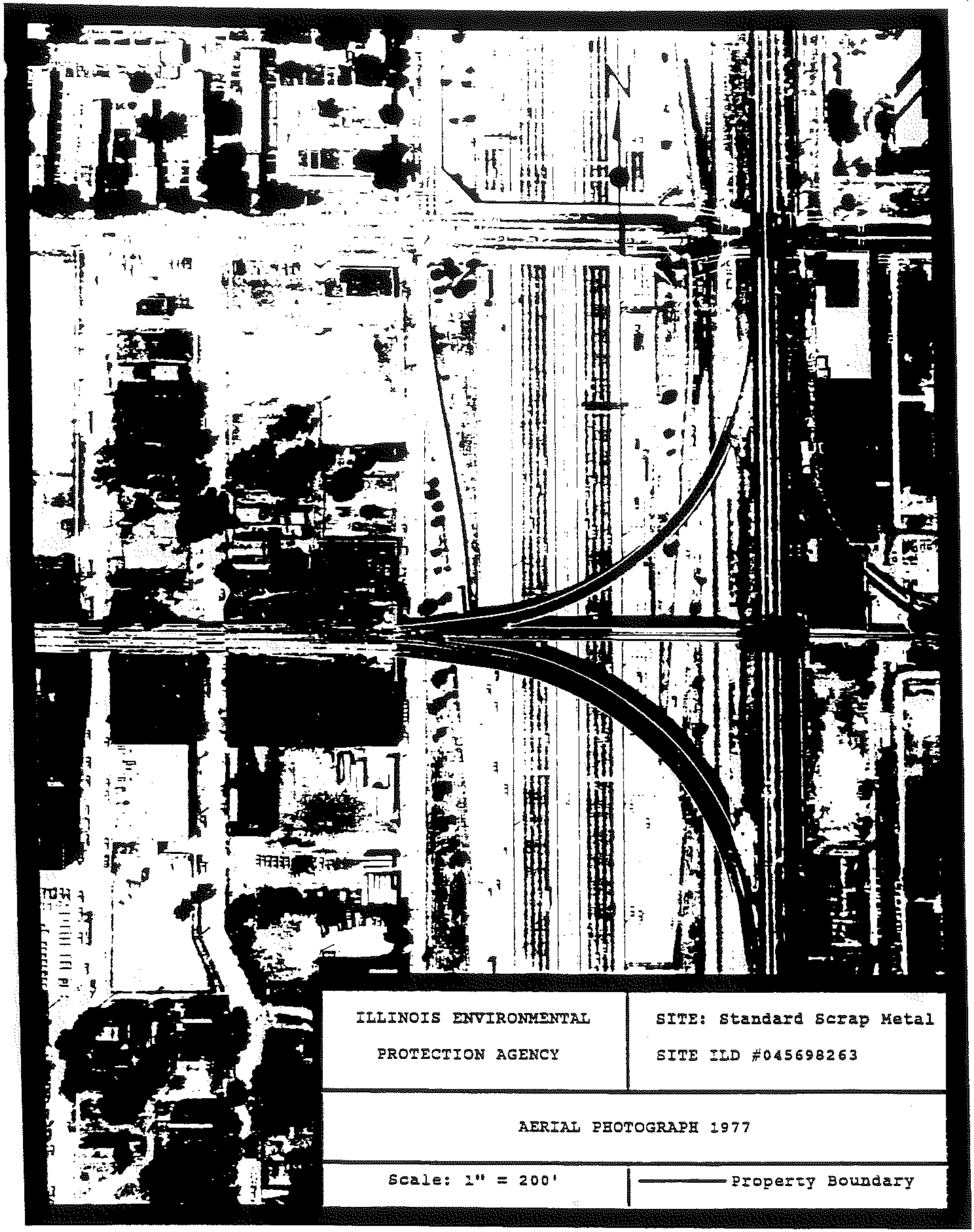


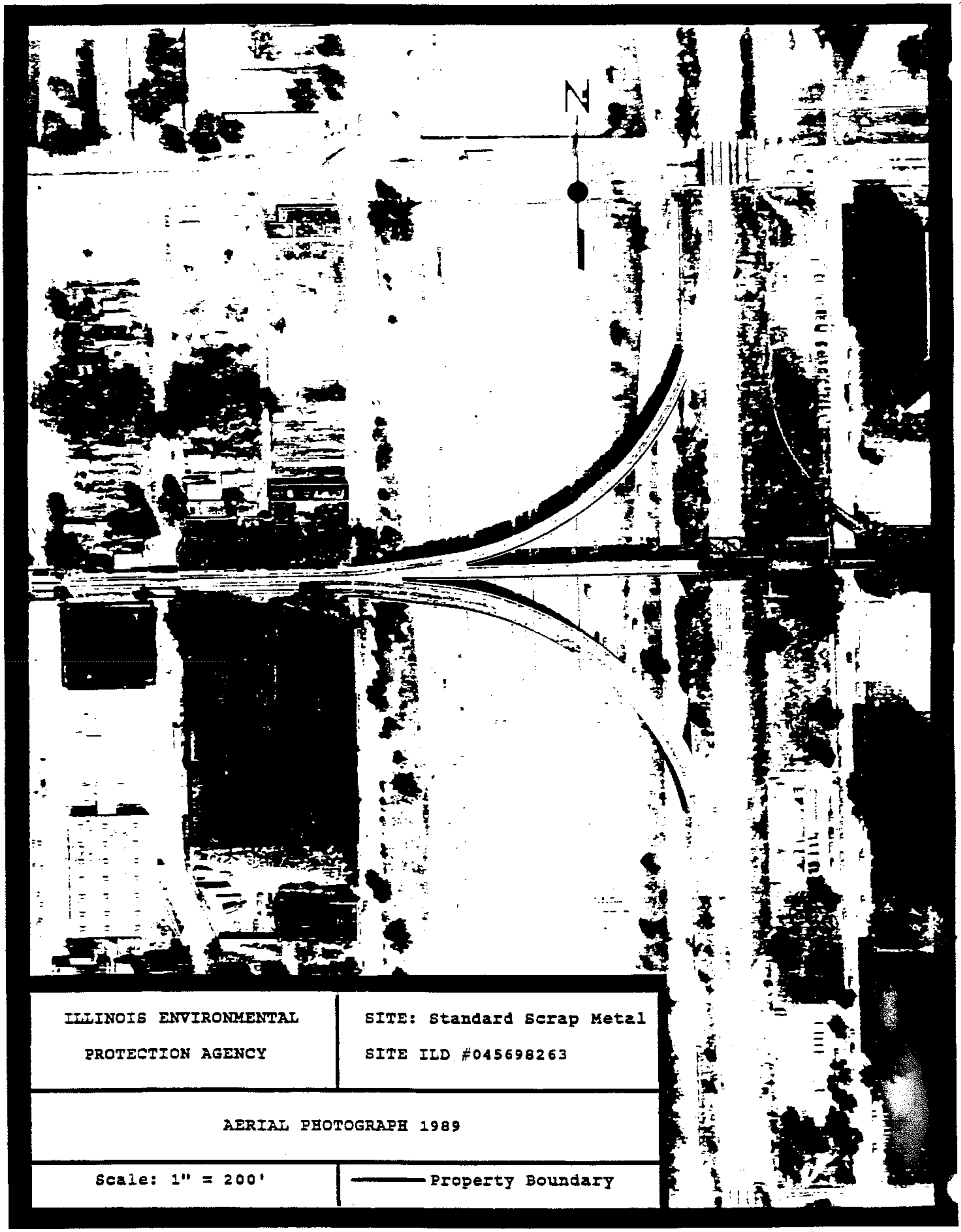


Aerial photograph courtesy of Illinois Dept. of Transportation



Aerial photograph courtesy of Illinois Dept. of Transportation


ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY
SITE: Standard Scrap Metal
SITE ILD #045698263
AERIAL PHOTOGRAPH 1977
Scale: 1" = 200'
Property Boundary



Aerial photograph courtesy of Illinois Dept. of Transportation industry interspersed throughout the area.

Currently, the east lot has an office building located on the west side with large piles of scrap metal located at various points throughout the property. According to aerial photographs previous to 1989, another building was located in the northeast corner of the east lot with a wire burning incinerator located immediately west of the building. The west lot is bare except for a small scale house used to weigh incoming trucks bringing scrap metal to the facility for recycling.

[redacted]

Historic records indicate that this property has been used for industrial purposes since at least 1895. A Sanborn Fire Insurance Map from 1895 indicates a parcel of the site was used by W.B. Scace and Company as a loading area for lime and cement. The remainder of the east lot and the west lot were used by Weaver Getz and Company for unknown purposes. A Sanborn Map from 1925 shows that the Baker-Smith Coal Company operated a coal yard in the east lot.

Standard Metal Company, formed by Mr. Sam Cohen and Mr. Sam Kanter, started operations at 4004 South Wentworth Avenue in 1928. Standard Metal was involved in reclaiming aluminum and copper, the reclaimed scrap metal was then sold to steel smelters and refiners. The facility utilized one gas-fired boiler, two aluminum sweat furnaces, and one wire burning incinerator. Operations continued until 1972 when Standard Metal Company was merged into Standard Scrap Metal Company, Incorporated in a tax free reorganization under Section 351 of the Internal Revenue Service Code. Standard Scrap Metal Company, Incorporated continued operations at the site until the company filed for bankruptcy in 1987. Phoenix Recycling started operations at the site soon after Standard Scrap filed for bankruptcy and continued operations until 1989. Phoenix Recycling was also owned by the Cohen and Kanter partnership and was involved in the reclamation of metals as well. In 1989, Chicago International Exporting began operations at the site and continues operations to this date. Chicago International Exporting is owned by Chicago International, Incorporated of which Mr. Steve Cohen, nephew of Sam Cohen, is president.

In 1973 Illinois Environmental Protection Agency (IEPA) visited Standard Scrap in order to determine the facility's compliance with Air Pollution Regulations. The inspection found that Standard Scrap Metal did not have the proper air pollution permits to operate their incinerator or sweat furnaces. A suit was filed against Sam Kanter, Sam Cohen, Benjamin Kanter doing business as Standard Metal Company for not possessing permits required by the IEPA and the City of Chicago. The complaint, filed and reinforced by the Illinois Pollution Control Board, stated that Standard Scrap could achieve compliance by installing afterburners on the sweat furnaces. However, the afterburners were not installed and permits were not applied for until 1984. Standard Scrap Metal applied for and received a permit (83030008, 031600BRZ) on December 14, 1984 for their gas-fire boiler.

The suit brought against Standard Metal for permit violations was pursued by the Illinois Pollution Control Board on January 10, 1985. It ordered Standard Scrap Metal Company to:

A) Cease and desist from operation of its incinerator until the necessary operating permit is obtained from the Illinois Environmental Protection Agency:

B) Cease and desist operating either of its aluminum sweat furnaces until the necessary permits are obtained from the Illinois Environmental Protection Agency and permanently shut down the inactive aluminum sweat furnace by January 21, 1985.

C) Install temperature gauges on each afterburner with an interlock that prevents operation unless the afterburner temperature is at least 1400 degrees Fahrenheit, and take all necessary steps to ensure adequate pre-heating of each afterburner prior to charging. These requirements are to be made conditions of the operating permits issued by the IEPA; and

D) Within 90 days of the date of this order pay a penalty of $30,000 for the violation of the Act and Regulations as described in this Opinion.

On February 14, 1984, another investigation was conducted at Standard Scrap Metal after a report of possible PCB contamination on site. An employee of Heatbath Corporation, the plant to the south of the west lot of Standard Scrap, observed Standard Scrap periodically dump transformer oil on the ground and igniting it. This practice was noted to have taken place from 1977 to 1981. On one occasion the roof of the Heatbath Corporation caught fire and the Chicago Fire Department was called to extinguish the fire.

During the February 14, 1984 investigation, the IEPA collected two soil samples, one from the west lot and the other from a garage at 3949 South Wells Avenue. The sample from 3949 South Wells was the result of a complaint from the resident that oil from Standard Scrap would flow off-site into her yard. The samples from the west lot revealed 1300 parts per million (ppm) PCBs and the sample from 3949 South Wells contained 3.9 ppm PCBs. The IEPA contacted the U.S. Environmental Protection Agency after the findings and requested a PCB inspection be conducted at the site.

U.S. EPA's Toxic Substances Office conducted an inspection of Standard Scrap on March 30, 1984 to document their handling, storage, and disposal practices. U.S. EPA representatives collected six composite soil samples and one wipe sample from the west lot and a residence at 3949 South Wells. Results indicated PCB contamination in the west lot of up to 2095 ppm but no detectable contamination at the 3949 South Wells residence. These findings by the U.S. EPA resulted in a complaint filed against Standard Scrap Metal for violating regulations pertaining to disposal of PCBs. A $25,000 civil penalty was levied against Standard Scrap Metal for improper disposal of PCBs.

On June 13, 1985, representatives of Roy F. Weston, Incorporated under contract with the U.S. EPA collected six samples from the west lot. The analytical results revealed soil contamination by PCBs and dioxins. An amended complaint was filed by the U.S. EPA against Standard Scrap with a $30,000 fine for violations of the Toxic Substance Control Act. This decision was appealed and dismissed due to lack of evidence of violations after 1978. The dismissal was appealed by the U.S. EPA which resulted in a reversal and the levying of the $30,000 fine. Standard Scrap Metal then filed for bankruptcy and the fine was never collected.

The IEPA requested a CERCLA discovery action for Standard Scrap Metal based on telephone conversation between a former railroad employee and IEPA personnel regarding activities at the site. The rail employee indicated that during his 30 years of employment he had witnessed Standard Scrap employees cut up transformers at the facility and allow the oil to drain onto the ground on numerous occasions. The employees then ignited the oil in order to dispose of it.

SECTION 3

SCREENING SITE INSPECTION ACTIVITIES

3.1 INTRODUCTION

This section outlines procedures utilized and observations made during the CERCLA Screening Site Inspection conducted at Standard Scrap Metal. Specific portions of this section contain information pertaining to the reconnaissance inspection, soil sampling, decontamination procedures, and the associated analytical results. Also included in this section is information about the soil/sediment samples that were collected during the Screening Site Inspection. This is followed by a description of the analytical results and a table indicating the key samples and their contaminants.

The CERCLA Screening Site Inspection for Standard Scrap Metal was conducted in accordance with the site inspection work plan which was developed and submitted to U.S. EPA Region V prior to the initiation of field sampling activities. The "Potential Hazardous Waste Site Inspection Report" (U.S. EPA Form 2070-13) for the Standard Scrap Metal site can be found in Appendix B of this report.

3.2 RECONNAISSANCE INSPECTION

On October 20, 1992, Mr. Mark Weber and Mr. Pete Sorensen, of the IEPA's CERCLA Site Assessment Unit, conducted the initial Screening Site Inspection reconnaissance of Standard Scrap

Metal. Access to the property to conduct the reconnaissance was denied by the attorney for Chicago International Export Company. The off-site reconnaissance included a visual inspection to determine the extent of Standard Scrap activities, the identification of possible on and off site sampling locations and requirements, and the identification of necessary health and safety requirements. During the reconnaissance inspection, it was determined that Level D personal protection equipment would be adequate during the sampling unless air monitoring equipment indicated concentrations over background.

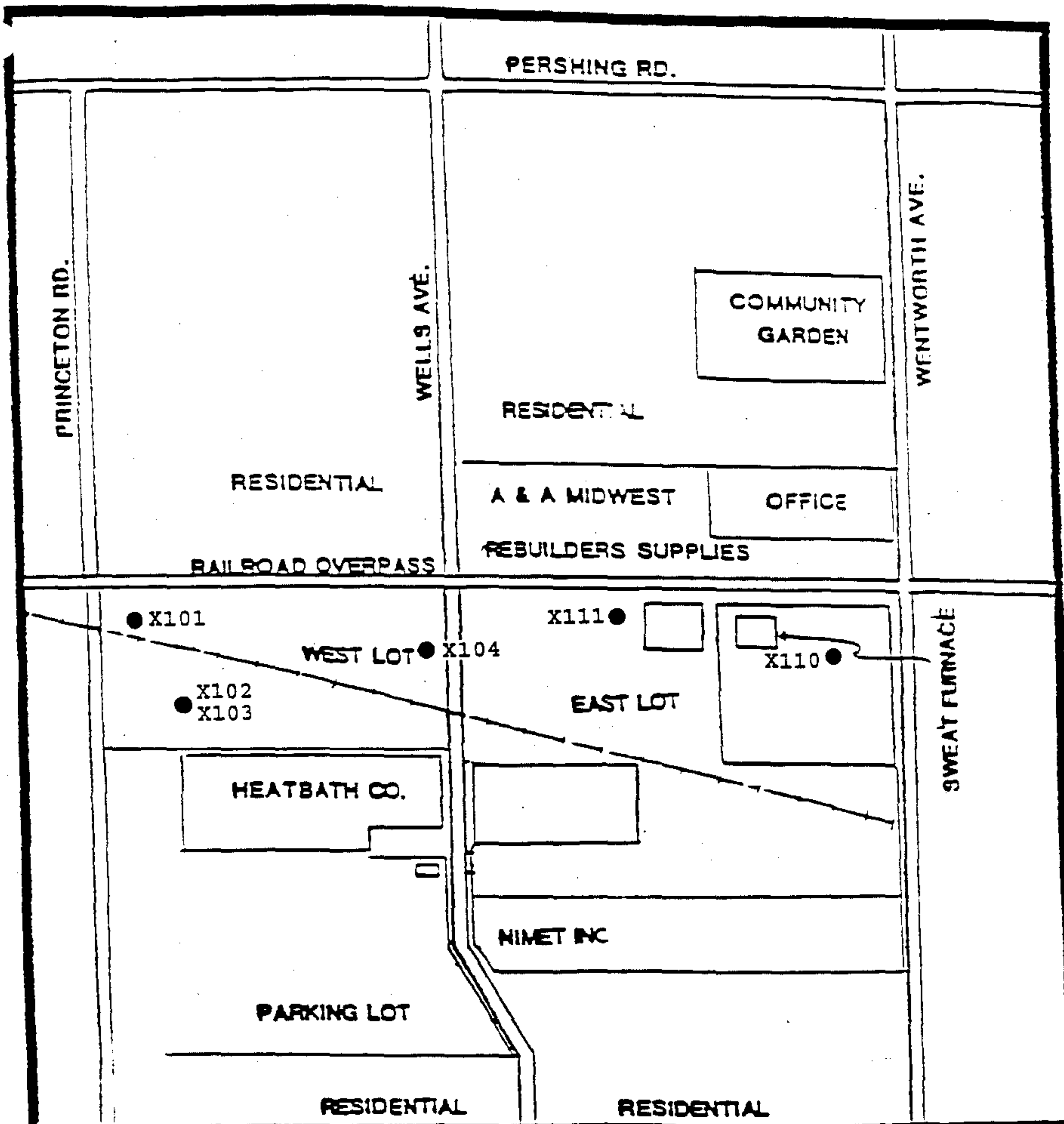
The reconnaissance confirmed that Standard Scrap Metal is located at 4004 South Wentworth Avenue in Chicago, Illinois. Current land use in close proximity of the site includes residential areas to the north and south as well as other industry located in the immediate area.

3.3 SITE REPRESENTATIVE INTERVIEW

The IEPA's Site Assessment Unit sent a letter to Mr. Steve Cohen on October, 12, 1992, notifying him of the upcoming CERCLA SSI sampling activities. Because access was denied, IEPA representatives were unable to conduct an interview with the current owner/operator of the site.

3.4 SOIL SAMPLING

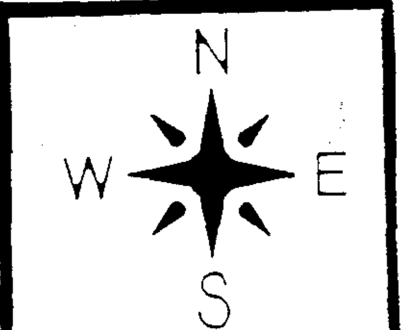
IEPA personnel collected 12 soil samples on November 4 and 5,

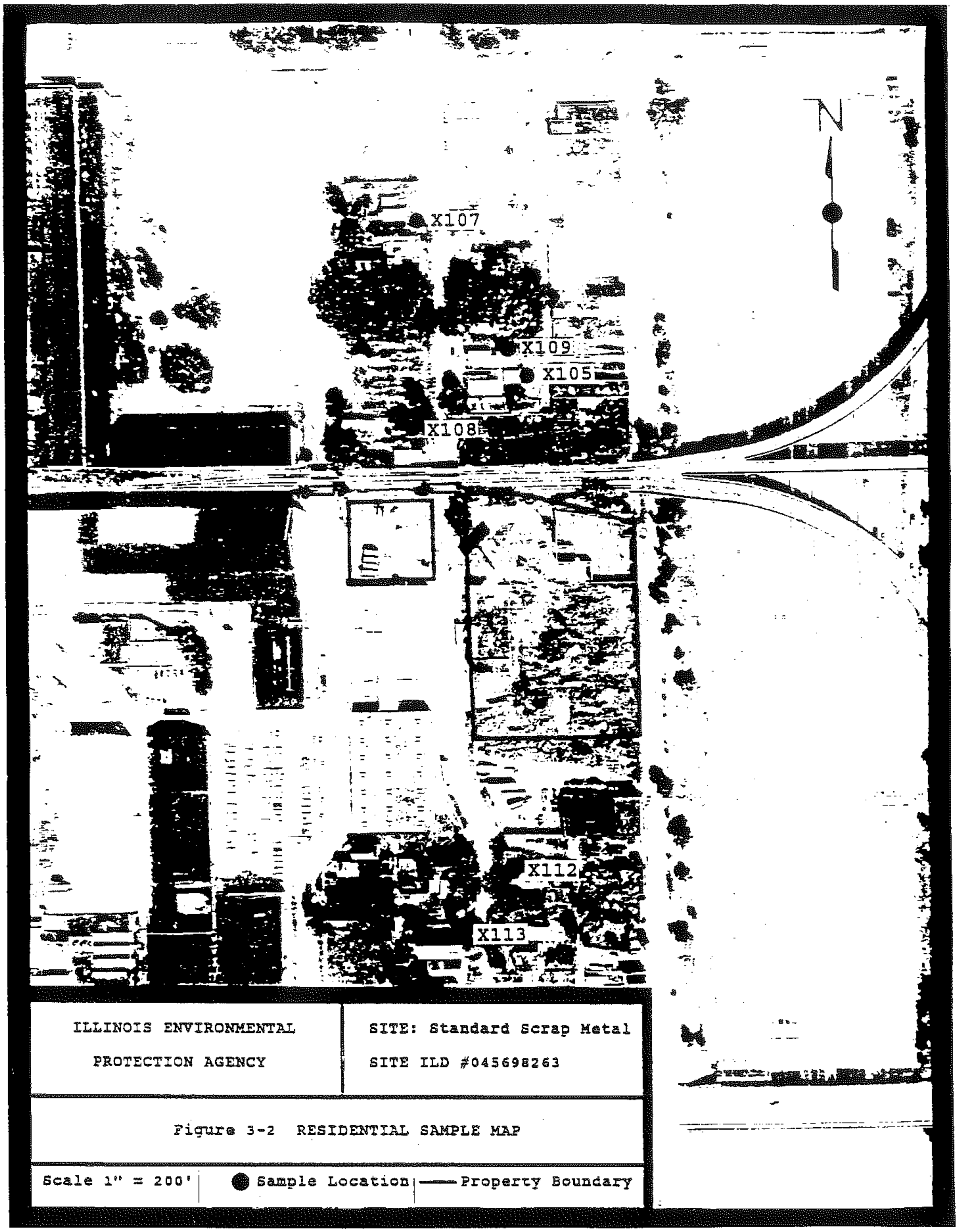


ILLINOIS ENVIRONMENTAL PROTECTION AGENCY	SITE: Standard Scrap Metal SITE ILD #045698263

Figure 3-1 FACILITY SAMPLING MAP

Not to scale | ● Sample Location | Property Boundary





ILLINOIS ENVIRONMENTAL PROTECTION AGENCY	SITE: Standard Scrap Metal SITE ILD #045698263

Figure 3-2 RESIDENTIAL SAMPLE MAP

Scale 1" = 200' | ● Sample Location | —— Property Boundary

Aerial photograph courtesy of Illinois Dept. of Transportation

1992 to determine if previously identified contaminants or other Target Compound List parameters were present at the Standard Scrap Metal facility and the surrounding community. Figures 3-1 and 3-2 are maps identifying the location of soil samples. The samples were collected with stainless steel trowels and stainless steel bucket or mud augers all of which had been decontaminated at the IEPA warehouse prior to the sampling event. The soil was transferred from the sampling device directly into IEPA sample jars supplied by the IEPA's Contract Laboratory Program.

The soil sample jars were packaged and sealed in accordance with previously documented Site Assessment Unit methods and procedures. The IEPA samples were analyzed for Target Compound List compounds (see Appendix C) by Gulf Coast Weston Laboratories in University Park, Illinois.

The dioxin analysis of the soil samples was conducted by California Analytical Laboratory in West Sacramento, California. The data was qualified by the U.S. EPA. Photographs of the CERCLA Screening Site Inspection field activities and a copy of the analytical results are provided in Appendices D and E respectively of this report.

3.5 DECONTAMINATION PROCEDURES

Standard IEPA decontamination procedures were followed prior to the collection of all soil samples. The procedures, performed at the IEPA warehouse, included the steam cleaning of all equipment (spoon, trowels, bucket and mud augers, extensions and handles, etc.), then scrubbing with a liquid Alcononx solution, rinsing with hot tap water, rinsing with acetone, rinsing with hot tap water again, and final rinsing with distilled water. All equipment is air dried, then wrapped and stored in aluminum foil for transport to the field.

3.6 ANALYTICAL RESULTS

This section provides a summary of the analytical results of samples collected during the CERCLA Screening Site Inspection conducted at Standard Scrap Metal in Chicago, Illinois. The field activities portion of the CERCLA Screening Site Inspection include the collection of 12 soil samples by the IEPA inspection team. The 12 samples were collected to determine if any U.S. EPA Target Compound List compounds (see Appendix C) were present at the site or at potential receptors of concern. Appendix E (second volume of this report) contains the complete validated laboratory data package and a table summarizing the data. See Figures 3-1 and 3-2 for specific sampling locations.

Soil Samples: A total of 12 soil samples were taken during the Screening Site Inspection of Standard Scrap Metal. Refer to table 3-1 and 3-2 for specific analytical and sampling information regarding each soil sample.

Soil sample X101 was collected with a bucket auger near the western property line of Standard Scrap's west lot. The sampling area was bare and had little, if any, vegetative cover. This sampling location was chosen because it was in the area where transformers were broken up and their oil was allowed to flow on the ground.

Sample X102 was obtained with a bucket auger approximately 30 feet north of the northwest corner of the Heatbath building in the western lot of Standard Scrap. It was in the same general vicinity as sample X101 and was also chosen as a sampling point due to the fact that it was in the area in which the transformers were broken up as well.

Soil sample X103 was taken as a duplicate of sample X102 using the same methods. It was located approximately 30 feet north of the northwest corner of the Heatbath building in the western lot of Standard Scrap.

Soil sample X104 was collected with a bucket auger at a depth of nine to fifteen inches. It was located approximately 70 feet north of the northeast corner of the Heatbath building in the western lot of Standard Scrap. This sampling point was chosen for the same reason as the last three samples. It was located in the area in which the transformers were broken up.

Soil samples X105 - X109 were collected from residential yards located north and south of Standard Scrap Metal. All of these samples were collected with a stainless steel trowel at depth of one to three inches. Sample X106 was taken approximately 87 feet south and 72 feet west of the northwest corner of the 3932 South Wentworth residence in an adjacent vacant lot. Sample X106 was discarded when it was decided that demolition activities may have taken place in the vicinity of the sampling point and may have had an impact on the analytic results.

Sample X105 was collected from the back yard of the residence at 3947 South Wells. It was taken approximately 60 feet east of the northeast corner of the residence. The residence is approximately 200 feet north of the facility. The top inch of sod was removed in order to obtain a good sample. This point was chosen in order to determine if any of the activities at Standard Scrap could have had an affect on the residences to the north and in order to determine if the soil exposure pathway had been affected.

Sample X107 was collected from the front yard of the residence at 3918 South Wells Avenue. The sample was taken approximately 15 feet north and 12 feet east of the northeast corner of the residence. The sampling point was covered with an inch of sod which was removed. The residence is located approximately 425 feet north of Standard Scrap. This point was chosen in order to determine if any activities at the site may have impacted the surrounding community.

Sample X108 was collected from the back yard of the residence at 3953 South Princeton. It was taken approximately 53 feet east and two feet south of the northeast corner of the residence. A 12 by 12 inch square of sod was removed in order to obtain a good sample. This point was chosen because the resident indicated that ash from the incinerator would cover his yard and home. The resident also indicated that the spot in which the sample was taken had never been disturbed during the time he has resided there. The residence is located approximately 115 feet north of the scrap yard.

Sample X109 was collected from the front yard of the 3941 South Wells residence. It was taken approximately 11 feet south and 25 feet east of the northeast corner of the dwelling. The residence is located approximately 225 feet north of the facility. A 10 by 10 inch square of sod was removed in order to obtain a good sample. This location was also chosen in order to determine what kind of impact past operations at Standard Scrap may have had on the surrounding community.

Sample X110 was collected in the east lot of Standard Scrap from a pile that appeared to be incinerator ash. It was taken approximately 32 feet south and 47 feet west of the northeast corner of the east lot with a stainless steel trowel. This sample was chosen because it was assumed that it would be the best possible chance at obtaining a "hit" directly from an easily identifiable and measurable source.

Sample X111 was collected from the northwest corner of the east lot of Standard Scrap. It was taken at a depth of six to twelve inches with a hand auger. At a depth of zero to six inches a granular blue/green material was encountered. The sampling point was approximately 11 feet south and 36 feet east of the northwest corner of the east lot. This point was chosen because numerous borings in the vicinity led to the conclusion that the northwest corner of the east lot had been filled in with soils, ash, and metal shavings.

Sample X112 taken from the front yard of the 4059 South Wells residence. After removing the top inch of cover the sample was taken at a depth of one to three inches with a stainless steel trowel. The sampling point was located approximately one foot south and six feet west of the northwest corner of the home. It was taken in order to determine whether contaminants from the facility had migrated towards the south. The residence is located approximately 200 feet south of the facility.

Sample X113 was originally intended for use as the background sample for the site inspection. Upon receiving the analytical results sample X113 was found to be "dirtier" than is normally acceptable for a background sample. The sample was obtained with a stainless steel trowel six feet north and six feet west of the northeast corner of the residence at 4068 South Wells. The residence is located approximately 300 feet south of the Standard Scrap facility.

3.7 KEY SAMPLES

The purpose of this section is to provide information on key samples or analytical data obtained during the Screening Site Inspection. During the sampling portion of the site inspection it was decided that sample X113 would be the background. When the analytical results arrived, we realized that the background had elevated concentrations as well. Given that Standard Scrap Metal will be going on to a CERCLA Expanded Site Inspection (ESI), another background sample from another location will be collected during the ESI.

In residential soil samples X108 and X112 laboratory analysis revealed PAH contamination at elevated levels. Analysis from samples taken from Standard Scrap Metal's property revealed the same contaminants but at much lower levels. At first it was thought that these contaminants may have migrated through the air from the incinerator that used to be in operation at the facility. Further research on the subject indicated that

SITE NAME: Standard Scrap Metal

ILD NUMBER: 045698263

TABLE 3-1
SUMMARY
Facility Soil Samples

SAMPLING POINT	X101	X102	X103	X104	X110	X111
PARAMETER	Soil	Soil	Soil	Soil	Soil	Soil
VOLATILES						
Methylene Chloride	23.0 J	12.0	16.0	20.0	26.0 J	22.0 J
Acetone	32.0 J	9.0 J	--	--	--	--
Carbon Disulfide	--	--	--	--	14.0 J	--
4-Methyl-2-Pentanone	13.0 J	--	--	--	--	--
Tetrachloroethene	--	--	9.0 J	--	--	--
Toluene	--	--	3.0 J	3.0 J	--	--
Trichloroethene	--	--	--	--	3.0 J	--
Styrene	--	--	--	3.0 J	--	--
Xylene(total)	6.0 J	--	--	--	--	--
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SEMIVOLATILES						
1,2,4-Trichlorobenzene	--	--	--	--	240.0 J	670.0 J
Naphthalene	--	--	--	420.0 J	520.0 J	310.0 J
2-Methylnaphthalene	--	--	--	740.0 J	530.0 J	370.0 J
Acenaphthylene	--	--	--	--	360.0 J	230.0 J
Acenaphthene	--	--	--	310.0 J	270.0 J	490.0 J
Dibenzofuran	--	--	--	430.0 J	330.0 J	350.0 J
Flourene	--	--	--	370.0 J	380.0 J	460.0 J
N-Nitrosodiphenylamine	--	--	--	--	630.0 J	--
Phenanthrene	6400.0 J	--	--	3400.0	2400.0	3600.0
Anthracene	--	--	--	610.0	560.0 J	910.0 J
Carbazole	--	--	--	360.0 J	--	540.0 J
Di-n-Butylphthalate	--	--	--	--	--	1300.0
Fluoranthene	7500.0 J	1500.0 J	1400.0 J	3200.0	2600.0	2600.0
Pyrene	7100.0 J	1600.0 J	1100.0 J	5100.0	5100.0 J	7600.0 J
Benzo(a)anthracene	4400.0 J	1000.0 J	950.0 J	2900.0	2600.0 J	4600.0 J
Chrysene	4500.0 J	1200.0 J	1100.0 J	2300.0	2600.0 J	3700.0 J
bis(2-Ethylhexyl)phthalate	--	1700.0 J	1200.0 J	1200.0	2600.0 J	2300.0 J
Di-n-Octylphthalate	--	--	--	370.0 J	--	--
Benzo(b)flouranthene	6900.0	2300.0 J	2600.0 J	3200.0 J	3400.0 J	8300.0 J
Benzo(k)flouranthene	2200.0 J	900.0 J	610.0 J	1000.0 J	1200.0 J	1500.0 J
Benzo(a)pyrene	6600.0 J	2300.0 J	1500.0 J	2200.0 J	2300.0 J	4400.0 J
Indeno(1,2,3-cd)pyrene	5500.0 J	2600.0 J	2300.0 J	1900.0 J	1700.0 J	5800.0 J
Dibenz(a,h)anthracene	2600.0 J	--	--	560.0 J	420.0 J	1600.0 J
Benzo(g,h,i)pyrylene	7100.0 J	3100.0 J	2600.0 J	2600.0 J	2000.0 J	7100.0 J
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES & PCB's						
Aroclor-1242	21000.0	87000.0	54000.0	--	77000.0	--
Aroclor-1254	--	--	50000.0	--	--	60000.0
Aroclor-1260	--	17000.0	--	10000.0	32000.0	--
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
INORGANICS						
Aluminum	6580.0 J	8690.0 J	6390.0 J	2910.0 J	38900.0 J	49000.0 J
Antimony	11.0 B	40.5	32.4	101.0	387.0	238.0
Arsenic	13.5 J	5.8 J	8.8 BJ	12.4 J	25.0 J	33.0 J
Barium	105.0	168.0	131.0	87.0	1190.0	2610.0
Cadmium	5.5	26.3	16.3	3.5	89.3	154.0
Calcium	14200.0	--	--	43600.0	39700.0	33800.0
Chromium	24.6	116.0	78.2	18.6	301.0	228.0
Cobalt	8.3 B	4.9 B	3.8 B	2.0 B	6.1 B	20.4
Copper	587.0 J	3620.0 J	1110.0 J	299.0 J	9750.0 J	21200.0 J
Iron	29800.0	24600.0	14600.0	18500.0	37900.0	133000.0
Lead	547.0 J	1260.0 J	838.0 J	1430.0 J	23000.0 J	9230.0 J
Magnesium	7250.0 J	80500.0 J	67000.0 J	22300.0 J	10800.0 J	15700.0 J
Manganese	373.0	385.0	292.0	192.0	641.0	1340.0
Mercury	0.4 J	6.0 J	5.0 J	0.7 J	4.2 J	16.7 J
Nickel	30.0	64.8	27.5	16.7	133.0	238.0
Potassium	313.0 B	221.0	328.0 B	480.0 B	1130.0 B	520.0 B
Selenium	3.1 J	--	0.9 BJ	1.6 J	9.8 J	8.4 J
Sodium	123.0 B	250.0 B	243.0 B	214.0 B	14.4	17.2
Thallium	0.7 BJ	--	--	--	397.0 B	273.0 B
Vanadium	17.9	10.3 B	7.3 B	12.9	21.2	35.0
Zinc	454.0 J	1800.0 J	1400.0 J	1090.0 J	3810.0 J	18800.0 J
Cyanide	1.2 J	1.0 J	1.1 J	1.1 J	1.4 J	1.4
Sulfide	31.0	28.1	28.2	28.4	32.2	29.4
Sulfate	290.0	48.8	47.0	55.6	3370.0	64.8
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
DIOXINS						
2378-TCDF	--	3.6 J	2.9 J	--	2.2	13.0
12378-PeCDF	--	--	0.6 JS	--	0.8 J	2.8
23478-PeCDF	--	--	--	--	1.0 J	4.3
123478-HxCDF	--	--	--	--	1.0 J	2.7
123678-HxCDF	--	--	--	--	0.2 JS	0.7 JS
234678-HxCDF	--	--	--	--	0.3 JS	0.7 JS
1234678-HpCDF	--	--	--	--	1.1 J	2.2 J
1234678-HpCDD	--	0.5 JS	--	--	0.4 J	1.6 J
1234789-HpCDF	--	--	--	--	--	0.5 JS
OCDD	0.6 JS	3.0 J	2.9 J	--	1.7 J	6.9
OCDF	--	--	--	--	0.7 JS	1.4 J
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
TENTATIVELY IDENTIFIED COMPOUNDS						
Octadecanoic Acid	--	--	--	--	2000.0 JN	--
2-Methyl-Napthalene	--	--	--	--	--	200.0 JN
1-Methyl-Napthalene	--	--	--	500.0 JN	--	--
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg

SITE NAME: Standard Scrap Metal

ILD NUMBER: 045698263

TABLE 3-1 (cont.)
SUMMARY
Residential Soil Samples

SAMPLING POINT	X105	X107	X108	X109	X112	X113
PARAMETER	Soil	Soil	Soil	Soil	Soil	Soil
VOLATILES						
Methylene Chloride	32.0 J	--	13.0 J	12.0 J	34.0 J	13.0 J
Ethylbenzene	--	3.0 J	--	--	--	13.0 U
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SEMIVOLATILES						
Naphthalene	260.0 J	97.0 J	420.0 J	140.0 J	650.0	97.0 J
2-Methylnaphthalene	340.0 J	71.0 J	440.0 J	180.0 J	450.0	110.0 J
Acenaphthylene	1000.0	150.0 J	900.0 J	230.0 J	310.0 J	190.0 U
Acenaphthene	--	--	1700.0	--	1200.0	190.0 U
Dibenzofuran	290.0 J	130.0 J	1000.0	170.0 J	970.0	140.0 J
Flourene	200.0 J	280.0 J	2200.0	200.0 J	1400.0	250.0 J
Phenanthrene	6100.0	2700.0	28000.0 D	3000.0	30000.0 D	7600.0 D
Anthracene	1200.0	500.0 J	5500.0 J	520.0 J	2300.0	800.0
Carbazole	1000.0	310.0 J	2000.0	--	1300.0	390.0 J
Di-n-Butylphthalate	1200.0	--	--	--	--	250.0 U
Fluoranthene	19000.0 D	3900.0	44000.0 D	4300.0	32000.0 D	14000.0 D
Pyrene	15000.0 D	3100.0	35000.0 D	4800.0 J	30000.0 D	12000.0 D
Butylbenzylphthalate	820.0 J	--	--	48.0 J	73.0 J	94.0 J
Benzo(a)anthracene	6600.0	2000.0	23000.0 D	2200.0 J	13000.0 D	5200.0 D
Chrysene	6200.0	1900.0	19000.0 D	1900.0 J	12000.0 D	3100.0
bis(2-Ethylhexyl)phthalate	2000.0	--	--	--	870.0	850.0 U
Benzo(b)flouranthene	12000.0 D	2900.0	38000.0 DJ	3700.0 J	20000.0 D	12000.0 DJ
Benzo(k)flouranthene	2800.0 J	790.0 J	6500.0 J	920.0 J	1600.0 J	1400.0
Benzo(a)pyrene	6900.0 J	1700.0	19000.0 DJ	2200.0 J	12000.0 D	3000.0
Indeno(1,2,3-cd)pyrene	4800.0 J	790.0 J	6100.0 J	1400.0 J	2600.0 J	1600.0
Dibenz(a,h)anthracene	1500.0 J	250.0 J	1900.0 J	270.0 J	730.0 J	390.0 J
Benzo(g,h,i)pyrylene	5200.0 J	890.0	6700.0 J	2000.0 J	2800.0 J	1800.0
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
PESTICIDES & PCB's						
4,4'-DDE	--	--	--	310.0 NJ	40.0 NJ	200.0 U
4,4'-DDE	--	--	670.0 J	920.0 J	160.0 J	160.0 J
Aroclor-1242	--	--	--	4800.0	--	1000.0 U
Aroclor-1260	--	980.0	--	1700.0	--	2000.0 U
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
INORGANICS						
Aluminum	5760.0 J	12900.0 J	5400.0 J	4830.0 J	4100.0 J	5050.0 J
Antimony	15.5 B	--	11.8 B	8.0 B	6.0 B	8.7 B
Arsenic	14.8 J	6.2 J	18.2 BJ	11.9 J	9.4 J	19.8 J
Barium	529.0	173.0	525.0	292.0	157.0	212.0
Cadmium	9.5	--	11.5	3.2	1.9	2.3
Calcium	33200.0	9350.0	34100.0	24300.0	54200.0	47100.0
Chromium	41.3	25.9	43.7	19.6	17.1	21.4
Cobalt	9.0 B	15.9	10.9 B	5.3 B	4.9 B	7.4 B
Copper	480.0 J	47.3 J	212.0 J	110.0 J	87.0 J	157.0 J
Iron	29300.0	23700.0	53200.0	17300.0	16000.0	15600.0
Lead	1850.0 J	151.0 J	1710.0 J	1080.0 J	748.0 J	889.0 J
Magnesium	10400.0 J	5320.0 J	14600.0 J	11000.0 J	28900.0 J	22100.0 J
Manganese	437.0	906.0	550.0	306.0	365.0	422.0
Mercury	0.5 J	0.1 J	1.1 J	0.8 J	0.5 J	1.0 J
Nickel	46.5	24.4	30.9	15.6	11.1	16.1
Potassium	763.0 B	2090.0	700.0 B	734.0 B	374.0 B	731.0 B
Selenium	1.6 J	0.7 BJ	0.9 BJ	0.9 BJ	0.6 BJ	1.0 BJ
Sodium	336.0 B	116.0 B	277.0 B	240.0 B	153.0 B	292.0 B
Vanadium	23.9	32.1	30.1	20.2	17.3	20.2
Zinc	1890.0 J	167.0 J	1030.0 J	786.0 J	440.0 J	538.0 J
Cyanide	1.3 J	1.2 J	1.4 J	1.3 J	1.2	1.1
Sulfide	33.7	31.8	24.8	30.3	28.1	31.9
Sulfate	62.5	63.7	67.0	57.4	58.3	61.3
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
DIOXINS						
2378-TCDF	0.3 JS	--	--	--	--	--
1234678-HpCDD	0.4 J	--	0.4 JS	--	--	--
OCDD	3.4 J	0.8 J	2.9 J	0.6 JS	1.3 J	0.8 J
OCDF	0.3 JS	--	0.3 JS	--	--	--
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
TENTATIVELY IDENTIFIED COMPOUNDS						
Hexadecanoic Acid	1000.0 JN	--	--	400.0 JN	--	1000.0 JN
Dibenzothiophene	--	--	--	--	600.0 JN	--
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg

PAH emissions from incinerators is near negligible. These contaminants may have come from a variety of sources. These sources include exhaust from automobiles, the burning of coal, oil, and wood to heat homes, and soot from various industrial processes. In general the contaminants are a product of incomplete combustion.

Polychlorinated biphenyls were found at concentrations above background in soil samples taken from Standard Scrap property. These contaminants can be directly associated with past activities at the facility. As stated earlier in this report, a former rail employee observed workers at Standard Scrap breaking up transformers and letting the oil spill directly onto the ground. The employees then set fire to the oil to dispose of it. This disposal method could also have caused a release of PAH's given the incomplete combustion of a hydrocarbon.

TABLE 3-2

SAMPLE DESCRIPTIONS

Sample	Depth	Appearance	Location
X101	6" - 12"	Dark brown silt with black stained material below.	95' north and 4'5" east of the northwest corner of the Heatbath building.
X102 X103	4" - 8"	Brown to dark brown silt with foreign debris.	29' north and 3' east of the northwest corner of the Heatbath building.
X104	9" - 15"	Brown silty loam with black foreign substance.	73' north and 3' east of the northeast corner of the Heatbath building.
X105	1" - 3"	Black silty loam.	60' east of northeast corner of the residence at 3947 South Wells.
X107	1" - 3"	Dark brown to black loam.	15' north and 12' east of the northeast corner of the residence at 3918 South Wells.
X108	1" - 3"	Black loam.	53'5" east and 2' south of the northeast corner of the residence at 3953 South Princeton.
X109	1" - 3"	Black loam.	11' south and 25' east of the northeast corner of the residence at 3941 South Wells.
X110	Surface	Incinerator ash pile.	Approximately 32' south and 47' west of the northeast corner of the east lot.
X111	6" - 12"	Brown loam with debris and blue/green granular material.	11'5" south and 36' east of a utility pole located in the northwest corner of the east lot.
X112	1" - 3"	Dark brown loam.	1' south and 6' west of the northwest corner of the residence at 4059 South Wells.
X113	.5" - 2"	Dark brown loam.	6' north and 6' east of northeast corner of the residence located at 4068 South Wells.

SECTION 4

IDENTIFICATION OF SOURCES

4.1 INTRODUCTION

This section briefly describes the various hazardous waste sources which have been identified in the initial stages of the CERCLA site investigation.

Information concerning the size, volume, and waste composition of each source has been collected during the initial site assessment reconnaissance visit and the SSI sampling event. The values presented are based on documented visual observations, preliminary investigative reports, aerial photographs, and analytical data. It should be pointed out that the total number and nature of the sources at the site may change as the facility progresses through the CERCLA site assessment process and receives further investigation.

4.2 SOURCE #1 - Contaminated Soils

Contaminated soils exist in both lots of Standard Scrap Metal and in the residences north and south of the facility from which soil samples were taken. The contamination of these soils is most likely a direct result of past operations at the site.

Soils samples taken from the facility and the neighboring residences revealed elevated concentrations of PCB's and low level dioxins which may be attributable to past disposal methods employed by Standard Scrap. These same residential samples also revealed elevated concentrations of PAH's and metals and some low level dioxins. It is possible that the facility may be partially responsible for these contaminants, but it is unlikely that Standard Scrap is the primary source. The residential soils were potentially affected by prior activities at the site, especially stack emissions and wind borne particulate matter.

4.3 SOURCE #2 - Waste Pile (Ash Pile)

During the Screening Site Inspection an ash pile was identified by the sampling team at the facility. The pile was located in northeast corner of the east lot on a concrete pad that served as the foundation for Standard Scrap Metal offices prior to their demolition.

An unpermitted wire incinerator was in operation at the facility until at least 1984. The current operators of the facility indicated they no longer burned wire at their premises. A sample taken directly from the ash pile revealed elevated concentrations of PCB's, metals, and dioxins. Particulate matter from the pile could have migrated off-site via the air pathway given its unconfined condition. The employees of the facility are also at risk given their daily exposure to the pile.

4.4 SOURCE #3 - Waste Pile (East Lot)

An area in the east lot of Standard Scrap Metal was identified as a waste pile by the sampling team during SSI activities. This area is located north of the present offices and west of the concrete pad which served as the foundation for the old Standard Scrap offices. This area was identified as a waste pile during numerous soil borings in the area which are used as a screening method to obtain a good sample. It was noted during the screening borings that the area primarily fill material composed of incinerator ash, metal shavings, wire, and soils. Analysis of soil sample X111, which was obtained from the fill area, revealed elevated concentrations of metals and dioxins and the presence of PAH's which were found throughout samples taken during the Site Inspection.

The presence of the metals and PCB's in this waste pile can be attributed to past disposal activities that took place at the facility. As indicated earlier the source of the PAH's at this site remains unknown. They may have come from the incinerator and the open burning of the transformer oil, but it is unlikely that either of these would have lead to the concentration levels which were revealed by the analytical results.

The employees of Standard Scrap are the biggest concern due to the fact that they are in constant contact with the contaminants. Since this waste pile is unconfined there also remains the possibility of airborne particulates being carried from the facility to the surrounding community.

SECTION 5

MIGRATION PATHWAYS

5.1 INTRODUCTION

This section includes information that may be useful in analyzing Standard Scrap Metals impact on the four migration pathways identified by the CERCLA Hazard Ranking System (HRS). The migration pathways which will be analyzed in this section are air and soil exposure.

5.2 GROUNDWATER PATHWAY

Groundwater samples were not collected during the Screening Site Inspection conducted at Standard Scrap Metal. The vast majority of residents in the City of Chicago receive their drinking water from intakes located on Lake Michigan.

5.3 SURFACE WATER PATHWAY

Surface water samples were not collected during the Screening Site Inspection conducted at Standard Scrap Metal. Surface water run-off from Standard Scrap enters directly into the storm sewers. The site is located in a heavily urbanized area and it would be difficult to attribute the contaminants found at the discharge point to operations at Standard Scrap given the variety of potential sources that could have affected the storm sewers.

5.4 AIR PATHWAY

No air samples were collected and there was no incineration taking place during the Screening Site Inspection. Conversations with residents in the surrounding community suggests that there have been releases to the air pathway on numerous occasions during past operations at Standard Scrap Metal. Residents in the area immediately surrounding the facility were interviewed during the Site Inspection. These residents reported particulate matter coming from the incinerator at Standard Scrap, falling to the ground and leaving a light coating on exposed surfaces. This would indicate a potential for airborne particulates to carry contaminants off-site.

Table 5-1

Estimated Air Target Populations

On a source	6
>0 to 1/4 mile	1,552
>1/4 to 1/2 mile	11,850
>1/2 to 1 mile	37,586
>1 to 2 miles	51,000
>2 to 3 miles	57,000
>3 to 4 miles	63,000

According to U.S. Department of the Interior "National

Wetland Inventory Maps", no wetlands are located within 1/2 mile of Standard Scrap Metal.

5.5 SOIL EXPOSURE PATHWAY

Soil samples taken during the Screening Site Inspection indicated releases of contaminants to nearby soils that may be attributable to Standard Scrap. Several inorganic compounds, PCB's, and dioxins were found in on-site soils, with PCB's and dioxins detected in off-site residential samples as well. The compounds found in the soil samples taken from Standard Scrap property are summarized in Table 3-1.

The inorganic compounds and PCB's found in residential soil samples X105 - X113 meet the criteria for observed contamination to the soil pathway. The resident population at which samples were taken is as follows; two residents at X105, at least eleven residents at X107, five residents at X108, and three residents at X109. The remaining residential properties lie between points of observed contamination, with a total population of 70 residents in these homes. The residential population does not include the six full time workers at the Standard Scrap Metal site. All residential soil samples were collected within 150 feet of the homes and within the top foot of soil. The overall residential population was estimated using a 2.72 person per household average for Cook County. The estimated population within one mile of the site is provided in Table 5-2.

Table 5-2

Estimated Soil Target Populations

On a source	6
>0 to 1/4 mile	1,552
>1/4 to 1/2 mile	11,850
>1/2 to 1 mile	37,586

No designated terrestrial sensitive environments are located nearby. Site access to the east lot is restricted by a eight foot high chain link fence. Access to the west lot is also restricted by an eight foot high chain link fence, but there is a hole in the fencing where it appeared that people had passed through. The facility is approximately three acres total in size counting both lots.

SECTION 6

BIBLIOGRAPHY

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Illinois State Geological Survey, 1955, Groundwater Possibilities in Northeastern Illinois, Circular 198, 24p.

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United State Environmental Protection Agency, Toxic Substances Control Office, files for Standard Scrap Metal Company.

United States Environmental Protection Agency, Toxic Substances Control Office, Report on Inspection to Determine Compliance with the PCB Disposal and Marking Regulations, March 30, 1984.

United States Geological Survey, 1972, Chicago Loop, Illinois 7.5 Minute Topographic Map.

United States Geological Survey, 1980, Englewood, Illinois 7.5 Minute Topographic Map.

United States Geological Survey, 1972, Jackson Park, Illinois 7.5 Minute Topographic Map.

Appendix A
Site 4-Mile Radius M

Appendix B
U.S. EPA Form 2070-13

Site Inspection Report

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	045698263

II. SITE NAME AND LOCATION

01 SITE NAME	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Standard Scrap Metal	4004 South Wentworth Ave.

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG. DIST.
Chicago	IL	60609	Cook	031	1

09 COORDINATES: LATITUDE — LONGITUDE —

10 TYPE OF OWNERSHIP (Check one): ■ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
11.4.92 (MONTH DAY YEAR)	■ ACTIVE ☐ INACTIVE	1928 (BEGINNING YEAR) / Present (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply): ☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ■ E. STATE ☐ F. STATE CONTRACTOR ☐ G. OTHER

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Mark J. Weber	LSCT	IEPA	(217) 782-6760

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Tom Crause	EPS IV	IEPA	(217) 782-6760
Kim Nika	EPS I	IEPA	(217) 782-6760
Sheila Murphy	LSCT	IEPA	(217) 782-6760
Judy Triller	EPS II	IEPA	(217) 782-6760
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Mr. Steve Cohen	President	4004 S Wentworth Ave.	(312) 924-4004
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION ☐ WARRANT	10:00 AM	

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Mr. Steve Cohen	Chicaco International Chicacos Inc.	(312) 924-4004

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Mark J. Weber	IEPA		(217) 782-6760	11.25.92

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	0456 98263

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES

- [x] A. SOLID
- [ ] B. POWDER, FINES
- [x] C. SLUDGE
- [ ] D. OTHER ______
- [ ] E. SLURRY
- [x] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE

TONS: UNKNOWN
CUBIC YARDS: UNKNOWN
NO. OF DRUMS: UNKNOWN

03 WASTE CHARACTERISTICS

- [x] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [x] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [ ] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE	UNKNOWN		PCB Contaminated Soils
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	UNKNOWN		Contaminated Soils

IV. HAZARDOUS SUBSTANCES

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	PCB's	1336-36-3		77000	ppb
	Naphthalene	91-20-3		650	ppb
	Benzo (a) pyrene	50-32-8		12000	ppb
	Aluminum	7429-90-5		49000	ppm
	Barium	7440-39-3		2610	ppm
	Cadmium	7440-43-9		154	ppm
	Chromium	7440-47-3		301	ppm
	Mercury	7439-97-6		18.7	ppm
	Fluorene	86-73-7		2200	ppb
	Phenanthrene	85-01-8		30000	ppb
	Di-n-Butylphthalate	84-74-2		1300	ppb
	Acenapthene	83-32-9		1700	ppb
	Pyrene	129-00-0		35000	ppb
	Lead	7439-92-1		23000	ppm
	Chrysene	218-01-9		19000	ppb
	TCDD	1746-01-6			ppb

V. FEEDSTOCKS

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION

IEPA Bureau of Land files
IEPA Bureau of Air files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE | 02 SITE NUMBER
IL | 0456994263

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION   02 ☐ OBSERVED (DATE: ________)   ☐ POTENTIAL   ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________   04 NARRATIVE DESCRIPTION

None documented or observed.

01 ☐ B. SURFACE WATER CONTAMINATION   02 ☐ OBSERVED (DATE: ________)   ☐ POTENTIAL   ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________   04 NARRATIVE DESCRIPTION

None documented or observed.

01 ■ C. CONTAMINATION OF AIR   02 ■ OBSERVED (DATE: 1990)   ☐ POTENTIAL   ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 221,944   04 NARRATIVE DESCRIPTION

IEPA personnel and nearby residents and businesses have complained of heavy black smoke emitted from the incinerator that used to be in operation at Standard Scrap Metal.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS   02 ☐ OBSERVED (DATE: ________)   ☐ POTENTIAL   ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________   04 NARRATIVE DESCRIPTION

Allegedly, Standard Scrap employees broke up transformers and allowed the oil to drain on the ground and then ignited the oil. The Chicago Fire Dept. was called on one occasion to extinguish a fire on the roof of a nearby business.

01 ☐ E. DIRECT CONTACT   02 ☐ OBSERVED (DATE: ________)   ☐ POTENTIAL   ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________   04 NARRATIVE DESCRIPTION

It was alleged that smoke from the on-site incinerator caused employees at a nearby business to become sick.

01 ■ F. CONTAMINATION OF SOIL   02 ■ OBSERVED (DATE: 1992)   ☐ POTENTIAL   ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 3 (Acres)   04 NARRATIVE DESCRIPTION

Soil samples taken during the SSI from the east and west lots of Standard Scrap Metal indicate the presence of PCB's, metals, PNA's, and PAH's.

01 ☐ G. DRINKING WATER CONTAMINATION   02 ☐ OBSERVED (DATE: ________)   ☐ POTENTIAL   ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________   04 NARRATIVE DESCRIPTION

No drinking water wells exist within four miles.

01 ■ H. WORKER EXPOSURE/INJURY   02 ☐ OBSERVED (DATE: ________)   ☐ POTENTIAL   ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 15   04 NARRATIVE DESCRIPTION

Full time employees at the facility are exposed to the aforementioned contaminants on a daily basis.

01 ☐ I. POPULATION EXPOSURE/INJURY   02 ☐ OBSERVED (DATE: ________)   ☐ POTENTIAL   ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________   04 NARRATIVE DESCRIPTION

Soil samples taken from nearby residents indicate the presence of PNA's and PAH's, but these contaminants may not be attributable to past operations at Standard Scrap Metal.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: IL | 02 SITE NUMBER: 045699263

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None documented or observed.

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

None documented or observed.

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None documented or observed.

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ________ 04 NARRATIVE DESCRIPTION

Waste oil from transformers was dumped onto the ground and set on fire.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Possible PCB contaminated oil flowed off-site into nearby yards.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None documented or observed.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Standard Scrap Metal illegally disposed of PCB contaminated oils.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 221,994

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Illinois EPA Air Division Files
ISWS Well Logs
ISGS "Groundwater Possibilities in Northeastern Illinois", Circular

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION
01 STATE: IL
02 SITE NUMBER: 045644263

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
■ C. AIR	8303008 031600BRX	12-14-94		For a gas-fire …
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE				
☐ H. LOCAL				
☐ I. OTHER				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
■ B. PILES	UNKNOWN	
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
■ H. OPEN DUMP	UNKNOWN	
☐ I. OTHER		

04 TREATMENT
- ■ A. INCINERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ■ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER

05 OTHER
- ■ A. BUILDINGS ON SITE

06 AREA OF SITE: 3 acres

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES

☐ A. ADEQUATE, SECURE ■ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

The scrap metal to be recycled is stacked in large piles. The pile of ash, from which a sample was taken during the SSI, is uncovered.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ■ NO

02 COMMENTS

Both lots are surrounded by fencing, however the west lot has a hole in the fence large enough for a person to pass thru.

VI. SOURCES OF INFORMATION

IEPA Division files
Recon visit

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE: IL
02 SITE NUMBER: 045698263

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ■	B. ☐
NON-COMMUNITY	C. ☐	D. ☐

02 STATUS

	ENDANGERED	AFFECTED	MONITORED
COMMUNITY	A. ☐	B. ☐	C. ☐
NON-COMMUNITY	D. ☐	E. ☐	F. ☐

03 DISTANCE TO SITE
A. ________ (mi)
B. ________ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING
☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)
■ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available)
☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER: 0

03 DISTANCE TO NEAREST DRINKING WATER WELL ________ (mi)

04 DEPTH TO GROUNDWATER ________ (ft)
05 DIRECTION OF GROUNDWATER FLOW ________
06 DEPTH TO AQUIFER OF CONCERN ________ (ft)
07 POTENTIAL YIELD OF AQUIFER ________ (gpd)
08 SOLE SOURCE AQUIFER ☐ YES ☐ NO

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings)

10 RECHARGE AREA
☐ YES ☐ NO
COMMENTS

11 DISCHARGE AREA
☐ YES ☐ NO
COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

■ A. RESERVOIR, RECREATION DRINKING WATER SOURCE
☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES
☐ C. COMMERCIAL, INDUSTRIAL
☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME	AFFECTED	DISTANCE TO SITE
Lake Michigan	☐	2.5 (mi)
	☐	(mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE: A. 50,988 (NO. OF PERSONS)
TWO (2) MILES OF SITE: B. 101,988 (NO. OF PERSONS)
THREE (3) MILES OF SITE: C. 159,988 (NO. OF PERSONS)

02 DISTANCE TO NEAREST POPULATION: .05 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE: Urban (unknown)

04 DISTANCE TO NEAREST OFF-SITE BUILDING: .02 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Densely populated in the surrounding area with many public housing projects. Also an area of heavy industry.

![EPA]

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE: IL | 02 SITE NUMBER: 045648263

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE
☐ A. 10^{-6} – 10^{-8} cm/sec ☒ B. 10^{-4} – 10^{-6} cm/sec ☐ C. 10^{-4} – 10^{-3} cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK
☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☒ B. RELATIVELY IMPERMEABLE (10^{-4} – 10^{-6} cm/sec) ☐ C. RELATIVELY PERMEABLE (10^{-2} – 10^{-4} cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
400 + (ft)	(ft)	UNKNOWN

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
3.5 (in)	2.4 (in)	1 %		%

09 FLOOD POTENTIAL
SITE IS IN 500 YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS
ESTUARINE A. NA (mi) OTHER B. (mi)

12 DISTANCE TO CRITICAL HABITAT
NA (mi)
ENDANGERED SPECIES:

13 LAND USE IN VICINITY
DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS, NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A .02 (mi)	B .05 (mi)	C NA (mi)	D NA (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The areasurrounding Standard Scrap Metal is located in an urbanized section of the south side of the City of Chicago. The surrounding area is residential and industrial. The terrain within a four mile radius is flat. Run of enters directly into storm sewers in the surrounding streets.

VII. SOURCES OF INFORMATION

USGS Topographic Maps
PA of Standard Scrap Metal

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IL	045697163

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	12	Weston Gulf Coast + California Analytical	
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE ● GROUND ● AERIAL

02 IN CUSTODY OF IEPA

03 MAPS ● YES ◯ NO

04 LOCATION OF MAPS

V. OTHER FIELD DATA COLLECTED

VI. SOURCES OF INFORMATION

Division files
Site Recon
Site representative interview

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	045698263

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	08 NAME (PARENT COMPANY)	09 D+B NUMBER
Chicago International, Inc.			
03 STREET ADDRESS	**04 SIC CODE**	**10 STREET ADDRESS**	**11 SIC CODE**
4004 S. Wentworth Ave.			
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	
Chicago, IL 60609			
01 NAME	**02 D+B NUMBER**	**08 NAME**	**09 D+B NUMBER**
03 STREET ADDRESS	**04 SIC CODE**	**10 STREET ADDRESS**	**11 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	
01 NAME	**02 D+B NUMBER**	**08 NAME**	**09 D+B NUMBER**
03 STREET ADDRESS	**04 SIC CODE**	**10 STREET ADDRESS**	**11 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	
01 NAME	**02 D+B NUMBER**	**08 NAME**	**09 D+B NUMBER**
03 STREET ADDRESS	**04 SIC CODE**	**10 STREET ADDRESS**	**11 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	

III. PREVIOUS OWNER(S) / IV. REALTY OWNER(S)

III. PREVIOUS OWNER(S)		IV. REALTY OWNER(S)	
01 NAME	**02 D+B NUMBER**	**01 NAME**	**02 D+B NUMBER**
Cohen + Kanter			
03 STREET ADDRESS	**04 SIC CODE**	**03 STREET ADDRESS**	**04 SIC CODE**
4004 S. Wentworth Ave.			
05 CITY / 06 STATE / 07 ZIP CODE		**05 CITY / 06 STATE / 07 ZIP CODE**	
Chicago, IL 60609			
01 NAME	**02 D+B NUMBER**	**01 NAME**	**02 D+B NUMBER**
Baker-Smith Coal Co.			
03 STREET ADDRESS	**04 SIC CODE**	**03 STREET ADDRESS**	**04 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**05 CITY / 06 STATE / 07 ZIP CODE**	
Chicago, IL			
01 NAME	**02 D+B NUMBER**	**01 NAME**	**02 D+B NUMBER**
W.B. Scace and Co.			
03 STREET ADDRESS	**04 SIC CODE**	**03 STREET ADDRESS**	**04 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**05 CITY / 06 STATE / 07 ZIP CODE**	
Chicago, IL			

V. SOURCES OF INFORMATION

IEPA Bureau of Land Files
Sanborn Fire Insurance Maps

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IL	045698263

II. CURRENT OPERATOR

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
		Chicago International, Inc.	

03 STREET ADDRESS	04 SIC CODE	12 STREET ADDRESS	13 SIC CODE
4004 S. Wentworth Ave.		4004 S. Wentworth Ave.	

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
Chicago	IL	60609	Chicago	IL	60609

08 YEARS OF OPERATION	09 NAME OF OWNER
1989 - Present	

III. PREVIOUS OPERATOR(S) / PREVIOUS OPERATORS' PARENT COMPANIES

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
Phoenix Recycling			

03 STREET ADDRESS	04 SIC CODE	12 STREET ADDRESS	13 SIC CODE
4004 S. Wentworth Ave.			

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
Chicago	IL	60609			

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1987 - 1989	Cohen + Kanter

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
Standard Scrap Metal Co.			

03 STREET ADDRESS	04 SIC CODE	12 STREET ADDRESS	13 SIC CODE
4004 S. Wentworth Ave.			

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
Chicago	IL	60609			

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1972 - 1987	Cohen + Kanter

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
Standard Metal Co.			

03 STREET ADDRESS	04 SIC CODE	12 STREET ADDRESS	13 SIC CODE
4004 S. Wentworth Ave.			

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
Chicago	IL	60609			

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1928 - 1972	Cohen + Kanter

IV. SOURCES OF INFORMATION

IEPA Bureau of Land files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION
01 STATE: IL
02 SITE NUMBER: 045698263

II. ON-SITE GENERATOR

01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE

NA

III. OFF-SITE GENERATOR(S)

01 NAME | 02 D+B NUMBER | 01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) | 04 SIC CODE | 03 STREET ADDRESS (P.O. Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE | 05 CITY | 06 STATE | 07 ZIP CODE
01 NAME | 02 D+B NUMBER | 01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) | 04 SIC CODE | 03 STREET ADDRESS (P.O. Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE | 05 CITY | 06 STATE | 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME | 02 D+B NUMBER | 01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) | 04 SIC CODE | 03 STREET ADDRESS (P.O. Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE | 05 CITY | 06 STATE | 07 ZIP CODE
01 NAME | 02 D+B NUMBER | 01 NAME | 02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) | 04 SIC CODE | 03 STREET ADDRESS (P.O. Box, RFD #, etc.) | 04 SIC CODE
05 CITY | 06 STATE | 07 ZIP CODE | 05 CITY | 06 STATE | 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
01 STATE: IL
02 SITE NUMBER: 045699263

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

NA

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ D. SPILLED MATERIAL REMOVED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ F. WASTE REPACKAGED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ G. WASTE DISPOSED ELSEWHERE 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ L. ENCAPSULATION 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ P. CUTOFF TRENCHES/SUMP 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	045699263

II. PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

NA

01 ☐ S. CAPPING/COVERING — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ W. GAS CONTROL — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ X. FIRE CONTROL — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

III. SOURCES OF INFORMATION

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION
01 STATE: IL | 02 SITE NUMBER: 0415698263

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☒ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

See SSI report pages 4 through 8

III. SOURCES OF INFORMATION

IEPA Bureau of Land files
PA of Standard Scrap Metal

TARGET COMPOUND LIST

Volatile Target Compounds

Chloromethane
Bromomethane
Vinyl Chloride
Chloroethane
Methylene Chloride
Acetone
Carbon Disulfide
1,1-Dichloroethene
1,1-Dichloroethane
1,2-Dichloroethene (total)
Chloroform
1,2-Dichloroethane
2-Butanone
1,1,1-Trichloroethane
Carbon Tetrachloride
Vinyl Acetate
Bromodichloromethane
1,2-Dichloropropane
cis-1,3-Dichloropropene
Trichloroethene
Dibromochloromethane
1,1,2-Trichloroethane
Benzene
trans-1,3-Dichloropropene
Bromoform
4-Methyl-2-pentanone
2-Hexanone
Tetrachloroethene
1,1,2,2-Tetrachloroethane
Toluene
Chlorobenzene
Ethylbenzene
Styrene
Xylenes (total)

Base/Neutral Target Compounds

Hexachloroethane
bis(2-Chloroethyl)Ether
Benzyl Alcohol
bis(2-Chloroisopropyl)Ether
N-Nitroso-Di-n-Propylamine
Nitrobenzene
Hexachlorobutadiene
2-Methylnaphthalene
1,2,4-Trichlorobenzene
Isophorone
Naphthalene
4-Chloroaniline
bis(2-chloroethoxy)Methane
Hexachlorocyclopentadiene
2-Chloronaphthalene
2-Nitroaniline
Acenaphthylene
3-Nitroaniline
Acenaphthene
Dibenzofuran
Dimethyl Phthalate
2,6-Dinitrotoluene
Fluorene
4-Nitroaniline
4-Chlorophenyl-phenylether
2,4-Dinitrotoluene
Diethylphthalate
N-Nitrosodiphenylamine
Hexachlorobenzene
Phenanthrene
4-Bromophenyl-phenylether
Anthracene
Di-n-Butylphthalate
Fluoranthene
Pyrene
Butylbenzylphthalate
bis(2-Ethylhexyl)Phthalate
Chrysene
Benzo(a)Anthracene
3,3'-Dichlorobenzidene
Di-n-Octyl Phthalate
Benzo(b)Fluoranthene
Benzo(k)Fluoranthene
Benzo(a)Pyrene
Indeno(1,2,3-cd)Pyrene
Dibenz(a,h)Anthracene
Benzo(g,h,i)Perylene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene

Acid Target Compounds

- Benzoic Acid
- Phenol
- 2-Chlorophenol
- 2-Nitrophenol
- 2-Methylphenol
- 2,4-Dimethylphenol
- 4-Methylphenol
- 2,4-Dichlorophenol
- 2,4,6-Trichlorophenol
- 2,4,5-Trichlorophenol
- 4-Chloro-3-methylphenol
- 2,4-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- Pentachlorophenol
- 4-Nitrophenol

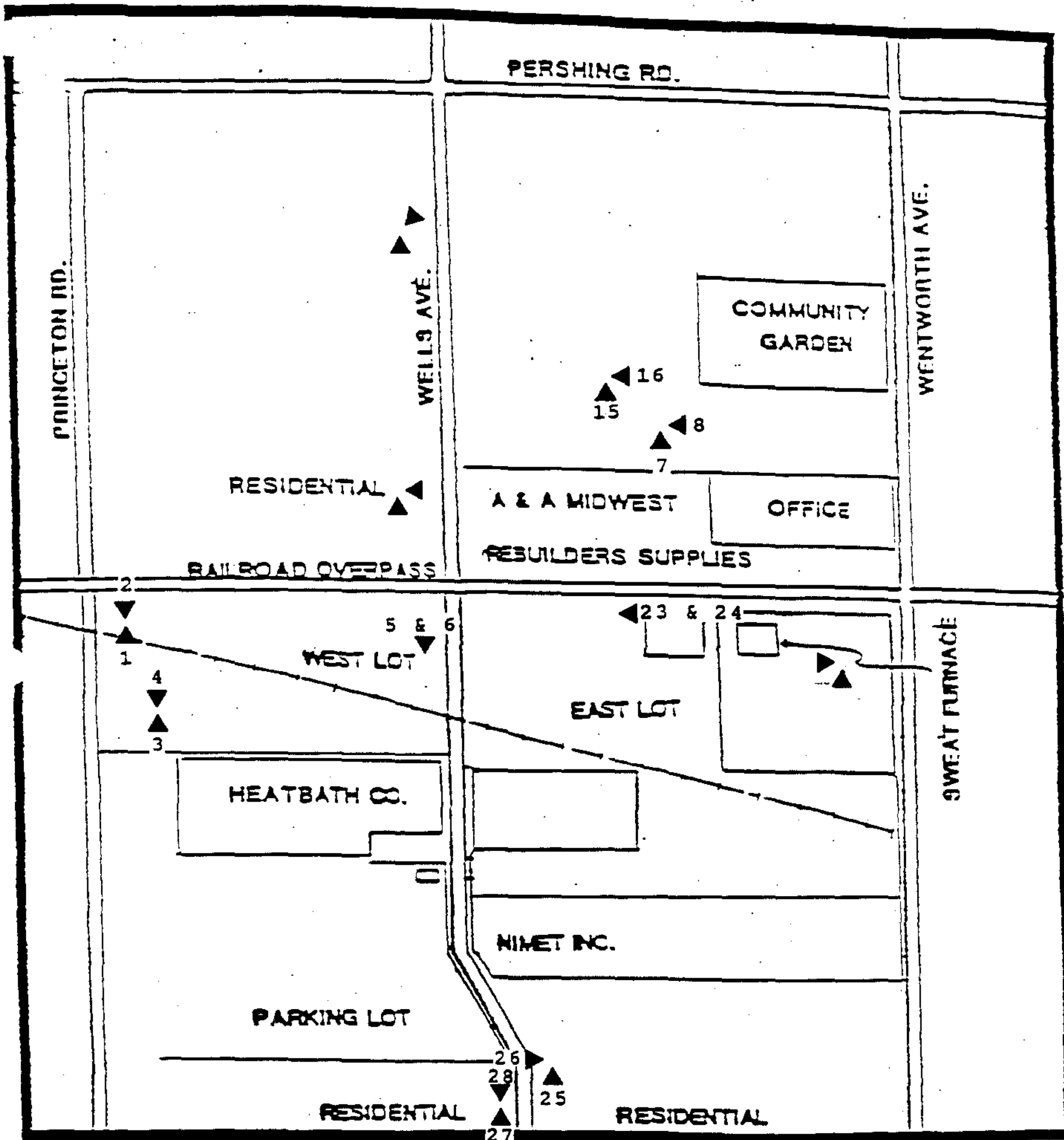
Pesticide/PCB Target Compounds

- alpha-BHC
- beta-BHC
- delta-BHC
- gamma-BHC (Lindane)
- Heptachlor
- Aldrin
- Heptachlor epoxide
- Endosulfan I
- 4,4'-DDE
- Dieldrin
- Endrin
- 4,4'-DDD
- Endosulfan II
- 4,4'-DDT
- Endrin Ketone
- Endosulfan Sulfate
- Methoxychlor
- alpha-Chlorodane
- gamma-Chlorodane
- Toxaphene
- Aroclor-1016
- Aroclor-1221
- Aroclor-1232
- Aroclor-1242
- Aroclor-1248
- Aroclor-1254
- Aroclor-1260

Inorganic Target Compounds

- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Calcium
- Chromium
- Cobalt
- Copper
- Iron
- Lead
- Magnesium
- Manganese
- Mercury
- Nickel
- Potassium
- Selenium
- Silver
- Sodium
- Thallium
- Vanadium
- Zinc
- Cyanide
- Sulfide
- Sulfate

Appendix D
Screening Site Inspection Photographs



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY	SITE: Standard Scrap Metal SITE ILD #045698263

PHOTOGRAPH LOCATION MAP

Base Map: Roy F. Weston, Inc.

DATE: November 4, 1992

TIME: 11:20 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 1

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Photo was lost.

DATE: November 4, 1992

TIME: 11:21 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 2

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
South

Photo was lost.

DATE: November 4, 1992

TIME: 12:20 PM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 3

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Taken in west lot of
Standard Scrap with
rail overpass in
background.

DATE: November 4, 1992

TIME: 12:20 PM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 4

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
South

Northwest corner of
Heatbath Corp. building
in background.

DATE: November 4, 1992

TIME: 1:13 PM

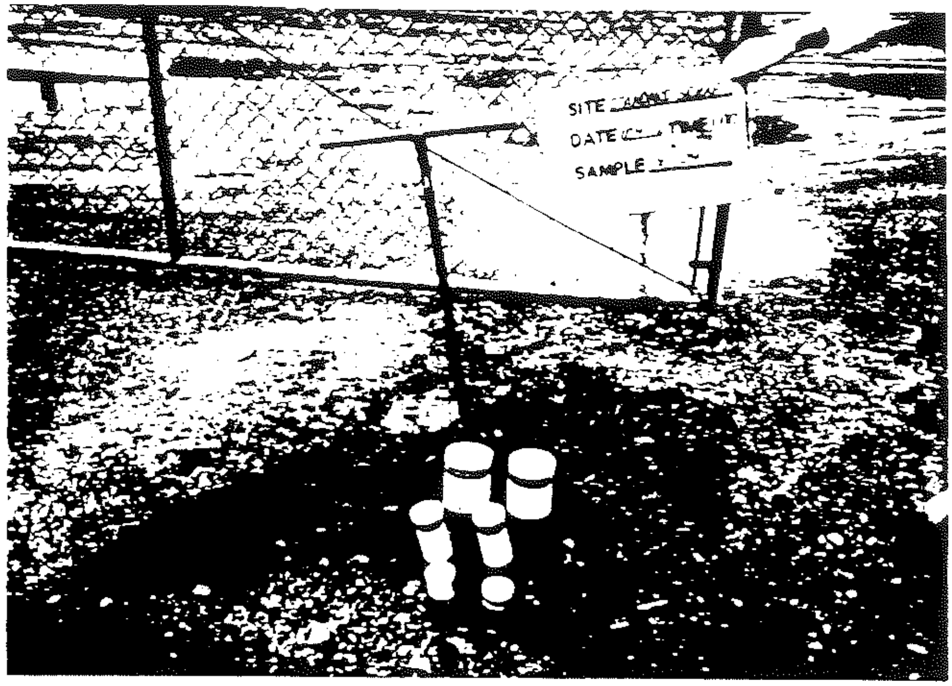
PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 5

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
South

Close up of sample X104 near the entrance to the west lot.



DATE: November 4, 1992

TIME: 1:15 PM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 6

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
South

Northeast corner of Heatbath building in the background.

DATE: November 4, 1992

TIME: 3:27 PM

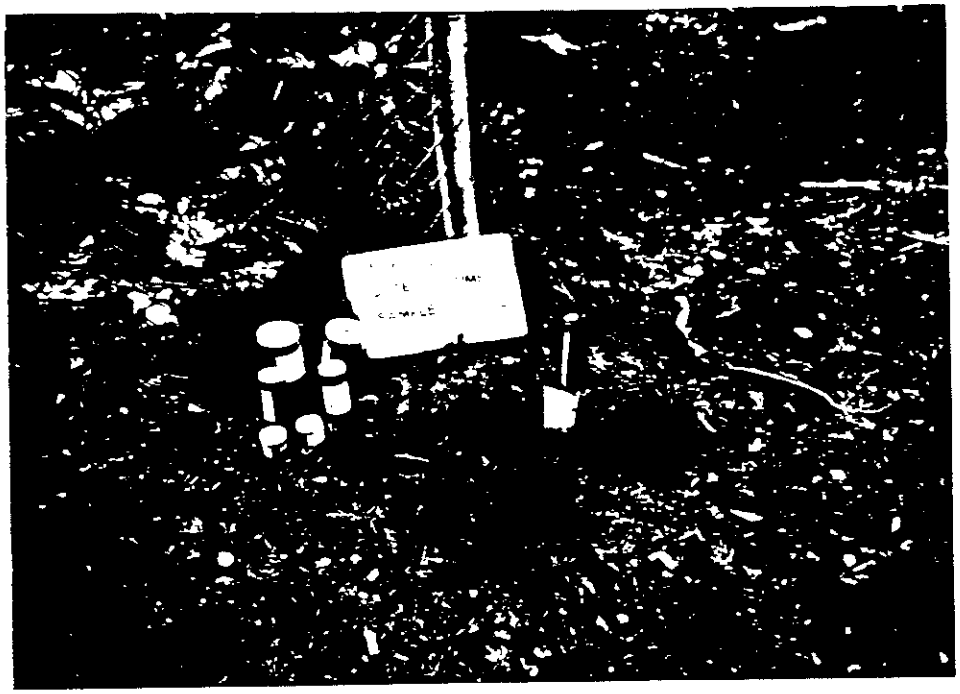
PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 7

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Close up of sample X105
near the residence at
3947 S. Wells Ave.



DATE: November 4, 1992

TIME: 3:30 PM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 8

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
West

Taken at the rear of the
3947 S. Wells residence
showing the northeast
corner.

DATE: November 4, 1992

TIME: 3:45 PM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 9

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Close up of sample X106
which was discarded.

DATE: November 4, 1992

TIME: 3:48 PM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 10

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
Southeast

Sample X106 with 3932
S. Wentworth Ave.
residence in the back-
ground.

DATE: November 5, 1992

TIME: 9:50 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 11

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Close up of sample X107 near the Kirkwood residence.

DATE: November 5, 1992

TIME: 9:50 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 12

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
Southwest

Northeast corner of the 3918 S. Wells residence is in the background.

DATE: November 5, 1992

TIME: 10:20 AM

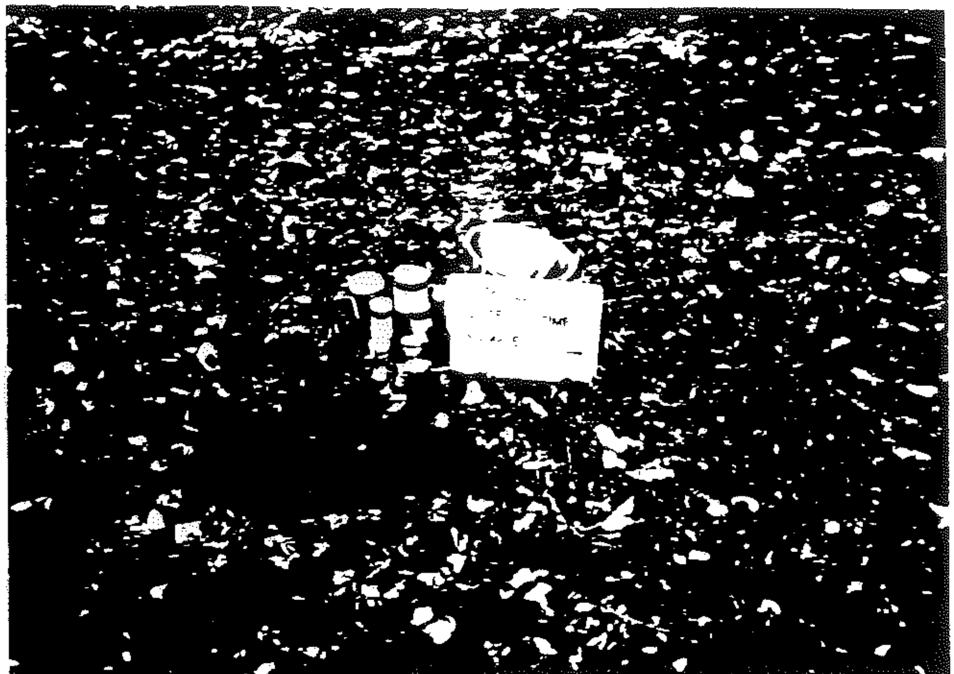
PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 13

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Close up of sample X108 taken from the yard at 3953 S. Princeton.



DATE: November 5, 1992

TIME: 10:20 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 14

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
West

Residence at 3953 South Princeton is in the background.

DATE: November 5, 1992

TIME: 10:30 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 15

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Close up of sample X109 taken from the back yard at 3941 S. Wells Ave.

DATE: November 5, 1992

TIME: 10:20 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 16

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
West

The back yard of the residence at 3941 South Wells Avenue.

DATE: November 5, 1992

TIME: 11:10 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 17

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
East

Close up of sample X110 which was taken from the waste pile located in Standard's east lot.

DATE: November 5, 1992

TIME: 11:10 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 18

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
South

Photo of waste pile with rail overpass in the background.

DATE: November 5, 1992

TIME: 11:20

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 19

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Photo of scrap wire that may have been burned by an incinerator operated at Standard Scrap.

DATE: November 5, 1992

TIME: 11:20 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 20

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Photo of scrap wire that may have been burned by an incinerator operated at Standard Scrap.

DATE: November 5, 1992

TIME: 12:00 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 21

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:

Photo was lost.

DATE: November 5, 1992

TIME: 12:00 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 22

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
Ground

Encountered phosphorous type substance at this point during the soil sampling.

DATE: November 5, 1992

TIME: 12:10 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 23

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
West

Close up of sample X111
where phosphorous type
substance was
encountered.

DATE: November 5, 1992

TIME: 12:12 AM

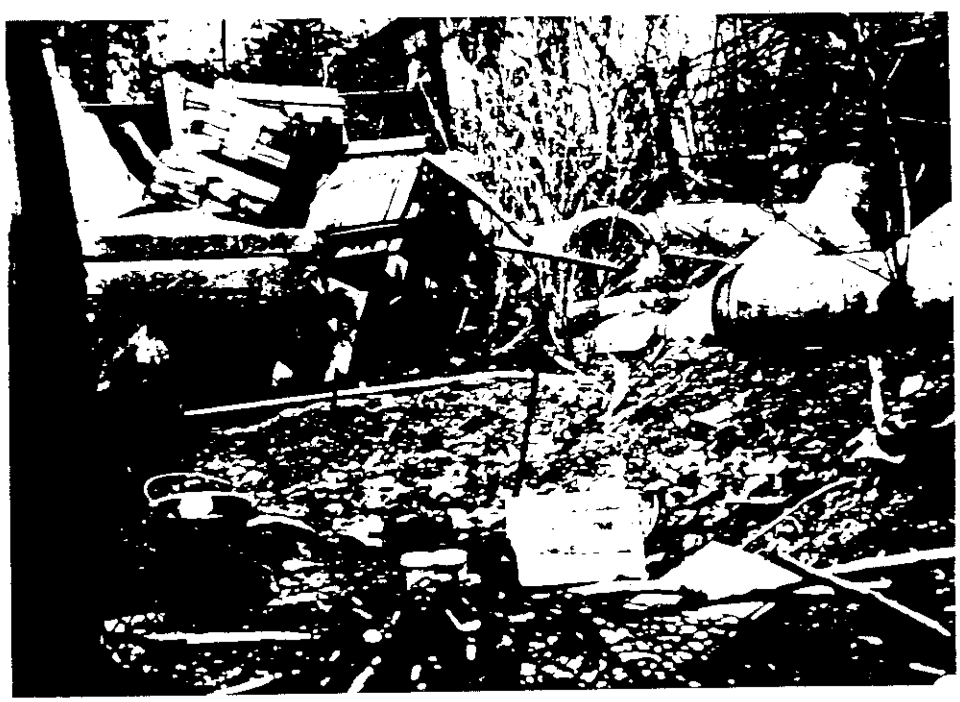
PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 24

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
West

Photo of sample X111
taken towards northwest
corner of Standard's
east lot.



DATE: November 5, 1992

TIME: 12:50 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 25

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Close up of sample X112
taken in side yard of
4059 S. Wells residence.

DATE: November 5, 1992

TIME: 12:52 AM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 26

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
East

Northeast corner of
front of residence at
4059 South Wells Avenue.

DATE: November 5, 1992

TIME: 1:05 PM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 27

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
North

Close up of sample X113 taken from vacant lot north of the 4068 S. Wells residence.

DATE: November 5, 1992

TIME: 1:05 PM

PHOTOGRAPH TAKEN BY:
Mark Weber

PHOTO NUMBER: 28

LOCATION: L0316610037
Cook County
Standard Scrap Metal
ILD 045698263

PHOTO TAKEN TOWARD:
South

Residence at 4068 South Wells Avenue in the background.

From: PEGGY DONNELLY
To: R5WST.R5RCRA.CAMPBELL-DUNCAN
Date: Wednesday, February 7, 1996 3:29 pm
Subject: RCRA Sampling/analysis questions

Duncan,

Sorry I have not replied to your questions about sampling and analysis from the PCB contaminated waste stream. This is definately something we can and will do. I checked with my boss (Lab Director, Chuck Elly) on the issue, and he said the following...

>>> CHARLES T. ELLY 02/07/96 02:04pm >>>
Duncan should have his RCRA Enforcement Chief identify the sampling entity. He should send a request to me care of Chi Tang(RSCC) or come to the next RSCC meeting to request it. Better yet, have him contact Chi. We can do the analyses.4
>>>>>>>>>>>>>>>>>>>>>>>>>>>>.....

...Basically, this means we need to know the name of the facility, locations and numbers of samples (at least an estimate) to be collected, and sample type (water, sludge, soil, air, etc.). Do you have a layout of the facility? --then we can figure out where we want to sample before we get there. Once you (or we) have decided on the number of samples, type, and what analytes to test for, we'll be all set to go. Chi Tang (my former Section Chief) is in charge of scheduling when samples can come into the lab. Depending on holding times for different testing parameters, that will determine when we can go out and collect. Chuck Elly suggests that we have an old CDO inspector (maybe Keith Lesniak, now in SF) come with us. I can talk to Keith, if you'd like -- we're buddies.

This sounds somewhat confusing, I'm sure. But, really, it is not! I'll try and call you to explain. We'll bust these guys if they are trying to play with the law!!

From: PEGGY DONNELLY
To: R5WST.R5RCRA.CAMPBELL-DUNCAN, R5ESD.ZOLNIERCZYK-KE...
Date: Thursday, February 8, 1996 4:21 pm
Subject: CIE Sampling (PCB and Metals via TCLP)

Ken and Duncan,

Could each of you please send a WPO message to Chi Tang, the CRL sample coordinator, regarding the samples that will be brought into the lab tomorrow. Include when and where they will be collected, which analytes you want tested for, aproximate number of samples, when results are needed, etc. Be sure to mention that the TCLP metals scan is for RCRA enforcement, and the PCBs are for the Toxics program. This will help expedite the analyses and be sure they are put onto the chemists' schedule. Also, let Chi know to whom the results should be sent. I have verbally told him of all that is happening tomorrow, and everything is set, but it is good to let him see the request in case of questions.

Call me in the lab if there are any questions, need tags, bottles, etc.
Peggy 3-9467

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

October 25, 1995

REPLY TO THE ATTENTION OF:

VIA FAX
THEN U.S. MAIL

Chicago International Exporting
Chicago International Chicago, Inc.
Attn: Mr. Steven Cohen and Mr. Lawrence Cohen
4020 S. Wentworth Ave.
Chicago, Illinois 60609
FAX (312) 924-4020

Re: Completion of Work under Order No. V-W-95-C-283 for the Standard Scrap/Chicago International Exporting Site, Chicago, Illinois, Cook County

Dear Sirs:

The United States Environmental Protection Agency (U.S. EPA) issued Unilateral Administrative Order No. V-W-95-C-283 on February 6, 1995 ("Order") to Chicago International Exporting, Chicago International Chicago, Inc. and Mr. Steven Cohen, and Lawrence Cohen ("Respondents"), requiring that those parties perform specified response actions at the Chicago International Exporting Site located at 4000-4020 South Wentworth, and 4004-4027 South Wells Streets, Chicago, Illinois ("Site"). The Order was issued to cease the on-going releases of hazardous substances and hazardous wastes from the Respondents' operations related to electric motors, scrap, scrap steel, shredder pickings, transformers, and other materials until appropriate pollution control equipment was installed. Pursuant to activities begun by Respondents, a sampling plan was submitted to U.S. EPA describing the sampling to be performed, and an Operational Contingency Plan was submitted which describes actions designed to control on-going and future releases at the facility from the shredding and separation processes, and the "motors-in-motors-out" operation at the Site.

On October 3, 1995, Respondents submitted a final report detailing the Results of the Air and Process Stream Sampling, and concurrently submitted an Operating and Contingency Plan. Based on my oversight of the Respondents' activities at the Site, my review of the final report, and a final inspection of the Site performed on October 12, 1995, I conclude that Respondents have completed the following work required by the Order:

1. Submission of an Air and Process Sampling Plan in May of 1995.

2. Completion of three rounds of sampling the shredder process waste streams and copper separator waste streams. Completion of three rounds of ambient air monitoring.

3. Submission of an Operating and Contingency Plan on October 3, 1995 which identifies actions that, if taken as set forth in the Operation Plan, will mitigate releases of hazardous substances from the shredding and copper separation operations, and the "motors-in-motors-out" operation. The Operation Plan covers material handling procedures, maintenance procedures, spill and baghouse failure contingency, reporting releases and training of current and new employees, and disposal of generated wastes.

4. Submission of Respondents' Results of Air and Process Stream Sampling Report in October of 1995 ("Sampling Results").

U.S. EPA has reviewed the final submission by Respondents and their Sampling Results and approves the report with the following modifications:

1. Page 9, Sampling Results suggests that the shredder pickings contain a total of 6.4 ppm of PCBs. The method used to calculate this number is not in the Federal, State or Local regulations, nor is it in any U.S. EPA Guidance documents. U.S. EPA does not agree with the method used to calculate this number and considers the shredder pickings to be a potential TSCA regulated waste as per the sampling conducted by the On-Scene Coordinator and as per sampling results submitted by Respondents. Delete last para. on p. 6 and figure 2 on p. 9.

2. Future sampling of the copper fines and pavement sweepings shall not incorporate compositing of the sampling as was done in prior sampling events. Each box of copper fines and pavement sweepings shall be sampled separately and are not to be composited. Prior to the Quarterly sampling of process waste streams, U.S. EPA TSCA Coordinator, Mr. Ken Zolnierczyk, shall be contacted at 312-353-9687, to oversee sample collection.

3. Operational and Contingency Plan- page 11- Baghouse Maintenance and Inspection. Insert the following:

a) On a daily basis check and record the baghouse pressure drop,

b) On a daily basis check to ensure that dust is being removed from the system,

c) On a weekly basis inspect all filter bags for tears, holes, abrasion, proper fastening, bag tension, and dust accumulation on the surface or in creases and folds. Maintain an adequate supply of spare filter bags to ensure that worn bags are replaced immediately,

d) On a weekly basis check cleaning sequence and cycle times for proper valve and timer operation. Check compressed air lines including oilers and filters. Inspect shaker mechanisms for proper operation.

Insert: any fire or smoke observed in the shredder or bag house will result in immediate shut down and emergency procedures to contain the fire or smoke. Bags must be inspected and replaced after the emergency and prior to start up of the shredder.

4. Table 4 of the Sampling Results indicates a hypothesis testing for Monitoring Programs. The Guidance used to calculate these cut-off values is not consistent with the TSCA regulations regarding dilution of the waste stream. Further sampling events will decrease the cut off values so they must be calculated again after the quarterly sampling.

5. Section 2.0 Sample Results, p.2, Para. 5 The use of total lead analysis as a "TCLP-equivalent" is unacceptable for future sampling. The Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901-6991i requires that for purposes of disposal, actual TCLP analysis must be performed, not total analysis. Since the receiving disposal facility is required to treat the waste prior to disposal, the record must show actual TCLP concentrations. Modify this section accordingly for future sampling.

6. Page 21 of the Operating and Contingency Plan, on Storage and Disposal of Waste. Indicate that Respondents have applied for a generator identification number from U.S. EPA. Respondents must also file a notification of hazardous waste activity pursuant to section 3010 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6930. Respondents must also file EPA Form 7710-53 notifying U.S. EPA of its PCB waste activities pursuant to 40 C.F.R. § 761.205(c)(2).

7. P.29, 3rd para. of Operating and Contingency Plan - Add the following sentences: To ensure samples of copper fines collected by Respondents are representative of the normal output of the shredder, the composite sample of copper fines to be collected by Respondents on a quarterly basis may be collected during an unannounced visit of a U.S. EPA inspector or representative of U.S. EPA, as U.S. EPA determines is necessary. Respondents may either collect its

own samples at such time or the U.S. EPA inspector or representative of U.S. EPA will collect the samples and provide Respondents with split samples.

8. Operating and Contingency Plan, P. 18: Delete references to 1 hour and 4 hours. Insert "immediately" as the time frame within which a spill must be reported. Also, identify the Local and State Emergency Response Commission to be notified as required under Emergency Planning and Community Right-To-Know Act (EPCRA), 42 U.S.C. §§ 11001-11050.

This letter merely reflects the U.S. EPA's determination that the work required by the Order was completed and that a final report has been submitted and approved, subject to the modifications stated above. This notice of completion in no way releases Respondents from any potential future obligations to perform additional work to address the same, or other, conditions at the site. This letter is not, and shall not be construed to be, a permit issued pursuant to any federal or state statue or regulation. Similarly, this notice of completion does not release Respondents from any record keeping, payment, or other obligations under the Order that extend beyond the date of this notice. This notice of completion does not in any way certify compliance of the Respondents' facility with the Federal and State Laws which regulate the generation, storage and disposal of the waste streams resultant from the shredding and separation systems, and "motors-in-motors-out" operation.

Further, nothing herein shall limit the power and authority of U.S. EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent U.S. EPA from seeking legal or equitable relief to enforce the terms of the Order. U.S. EPA also reserves the right to take any other legal or equitable action as it deems appropriate and necessary, or to require the Respondents in the future to perform additional activities pursuant to CERCLA or any other applicable law.

Nothing in this letter constitutes a satisfaction of or release from any claim or cause of action against the Respondents or any person not a party to the Order, for any liability such person may have under CERCLA, other statutes, or the common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106(a) or 107(a) of CERCLA, 42 U.S.C. §§ 9606(a), 9607(a).

Please submit the revisions outlined above in the final reports and re-submit to the U.S. EPA. Please contact me at 312-353-9351, or Kurt Lindland, Assistant Regional Counsel at 312-886-6831 if you have any questions concerning this letter.

Sincerely,

Steven J. Faryan
U.S EPA Region V
On-Scene Coordinator

cc: Joseph G. Nassif (By FAX)
Coburn & Croft
Suite 2900
One Mercantile Center
Saint Louis, Missouri 63101
FAX (314) 621-2989

Samuel D. Brooks (By FAX)
U.S. Attorneys Office
Northern District of Illinois
219 S. Dearborn St.
Chicago, Illinois 60404
FAX (312) 886-0657

bcc: Kurt Lindland, ORC
Chris Liiszewski, ORC
Debbie Regal, WMD
Jonathon Adenuga, HRE-HJ
Ken Zolnierczyk, SPB-14J
Brent Marable, AR-18J
Site File

Prepared For:

CHICAGO INTERNATIONAL EXPORTING
4020 Wentworth Avenue
Chicago, Illinois

DRAFT

Results of Air & Process Stream Sampling
Pursuant to USEPA Administrative Order (dated February 6, 1995)

CWE Job No. C075-083

Prepared By:

Clean World Engineering, Ltd.
1776B S. Naperville Road, Suite 102
Wheaton, IL 60187-8100
(708) 260-0200
(708) 260-0797 (Fax)

Date: October 1995

1.0 INTRODUCTION

This report documents the results of the sampling and analysis conducted pursuant to USEPA's Unilateral Administrative Order for Chicago International Exporting, dated February 6, 1995.

2.0 SAMPLING AND ANALYTICAL METHODOLOGY

Most details of the sampling protocol are provided in the sampling plan. The following discussion provides an overview of the sampling program.

The baghouse dust was sampled by hand augering down the center of each Gaylord box and collecting a subsample from the top, middle and bottom levels. The top, middle and bottom subsamples from each box sampled were then combined in a stainless steel bowl and manually mixed to form a homogeneous composite of all subsamples. The same procedure was also followed for the seperator table fluff. The number of boxes representing each composite sample are shown in Table 1.

Same problem as the grid

The copper fines were sampled in a similar manner as the baghouse dust and seperator table fluff except that a small shovel was used to dig through the middle of each container. The number of containers sampled during each round of sampling is also shown in Table 1.

The scrap steel and scrap copper was sampled by simply grabbing 10 subsamples from whatever stockpiles were present on the day of sampling. The 10 subsamples were evenly distributed over the surface of the scrap steel stockpiles and over the surface and interior portions of the scrap copper stockpiles. The interior portions of the scrap copper stockpiles were accessed by cutting halfway into the pile using a bobcat.

All samples were submitted for PCB's analysis by EPA method 8080 and either total lead analysis by EPA method 7420 or TCLP lead analysis by EPA methods 1311/1610/7000. Although the TCLP lead analysis is more relevant to this project, the total lead analysis was used as a "TCLP-equivalent" analysis by correlating a total lead value of 1300 parts per million (ppm) to a TCLP lead value of 5 milligrams per liter (mg/l).

perform actual TCLP

Three days of air monitoring for lead and PCB's were conducted at the 3 locations shown on Figure 1 in accordance with OSHA method ID121 and NIOSH method 5503, respectively. The sampling period on each day varied between 240 minutes (4 hours) and 300 minutes (5 hours). The flow rates for the lead sampling was 10.0 liters per minutes (lpm) on the first day and 4.0 lpm on the second and third days. The flow rates for PCB's sampling was 2.0 lpm on the first day and 0.2 lpm on the second and third days. Sample cassetes were set at breathing zone elevations approximately.

Both the shredding and chopping lines were operating during the sampling period on all 3 days. The shredding line was running scrap steel on all 3 days of sampling while the chopping line was running scrap copper. Incoming material was off-loaded and sorted as is normally done.

TABLE 1

PROCESS STREAM SAMPLE ID'S
Chicago International Exporting

Material	Round #	Sample ID	# of Containers
Baghouse dust - shredding line	1	BDS-1	1
Baghouse dust - chopping line	1	BDC-1	1
Baghouse dust - shredding line	2	BDS-2	1
Baghouse dust - chopping line	2	BDC-2	2
Baghouse dust - both lines combined	3	BDSC-3	3
Baghouse dust - both lines combined	3	BD-3B	8
Seperator table fluff	1	STF-1	1
Seperator table fluff	2	STF-2	2
Seperator table fluff	3	STF-3	3
Copper fines	1	CF-1	1
Copper fines	2	CF-2	2
Copper fines	3	CF-3	4
Baghouse dust from shredder pickings	1	SP-BD-1	1
Copper scrap from shredder pickings	1	SP-CS-1	--
Steel scrap from shredder pickings	1	SP-SS-1	--
Copper fines from shredder pickings	1	SP-CF-1	1
Pre - shredded shredder pickings	2	SP-2	--
Duplicate of Pre - shredded shredder pickings	2	SP-2D	--
Scrap copper	1	SC-1	--
Scrap copper	2	SC-2	--
Scrap copper	3	SC-3	--
Scrap steel	1	SS-1	--
Scrap steel	2	SS-2	--
Scrap steel	3	SS-3	--

"--" indicates that sample was collected from stockpile.

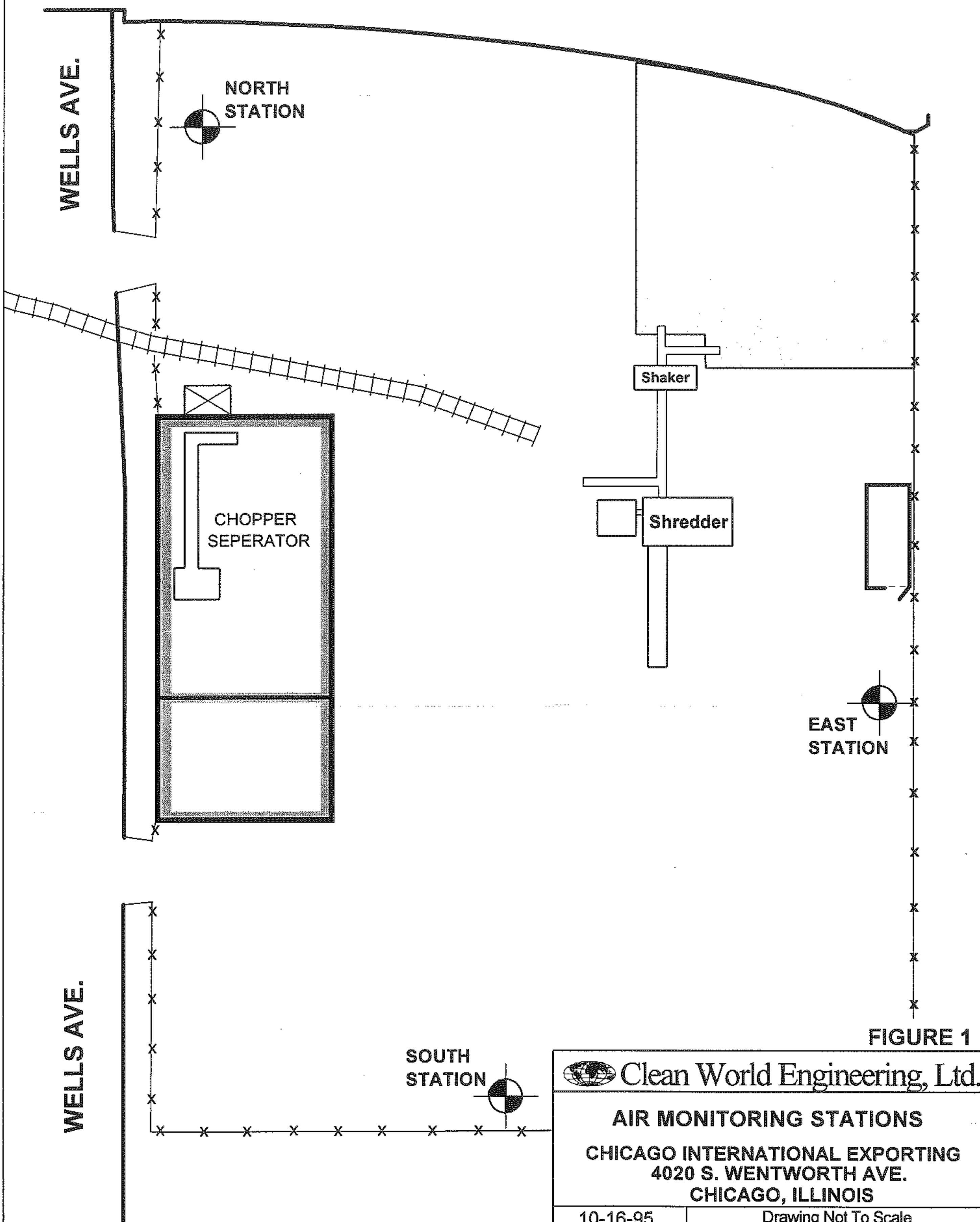


FIGURE 1

Clean World Engineering, Ltd.

AIR MONITORING STATIONS

CHICAGO INTERNATIONAL EXPORTING
4020 S. WENTWORTH AVE.
CHICAGO, ILLINOIS

10-16-95	Drawing Not To Scale

DRAFT

3.0 RESULTS

Table 2 summarizes the results of the process stream materials and Table 3 summarizes the results for the air sampling. Complete analytical packages are contained in Appendix A.

Figure 2 illustrates the distribution of PCB's in the load of shredder pickings that were processed through the shredder. The total of 6.4 ppm was obtained by summing the proportionate contribution from each of the shredder end products.

TABLE 2

PROCESS STREAM ANALYTICAL RESULTS
Chicago International Exporting

Material	Round 1	Round 2	Round 3	Duplicate
PCBs				
Baghouse dust - shredding line	224	274	--	--
Baghouse dust - chopping line	195	76	--	--
Baghouse dust - both lines combined	--	--	283	150
Seperator table fluff	129	71	140	--
Copper fines	19	31	165	--
Baghouse dust from shredder pickings	280	--	--	--
Copper scrap from shredder pickings	8.1	--	--	--
Steel scrap from shredder pickings	0.83	--	--	--
Copper fines from shredder pickings	39	--	--	--
Pre - shredded shredder pickings	--	63	--	2.9
Scrap copper	23	19	80	--
Scrap steel	0.35	0.94	7.8	--
TCLP LEAD				
Baghouse dust - shredding line	0.14	LT 0.08	--	--
Baghouse dust - chopping line	LT 0.08	3.81	--	--
Baghouse dust - both lines combined	--	--	0.38	5.57
Seperator table fluff	51.9	29.3	37.8	--
TOTAL LEAD				
Copper fines	2,100	481	230	--
Scrap copper	LT 4.0	350	LT 4.0	--
Scrap steel	2,200	84.7	220	--
Baghouse dust from shredder pickings	1,300	--	--	--
Copper scrap from shredder pickings	81	--	--	--
Steel scrap from shredder pickings	1,700	--	--	--
Copper fines from shredder pickings	1,200	--	--	--
Pre - shredded shredder pickings	--	LT 80	--	LT 20
NOTE: All results reported in units of parts per million. LT indicates less than detection limit				

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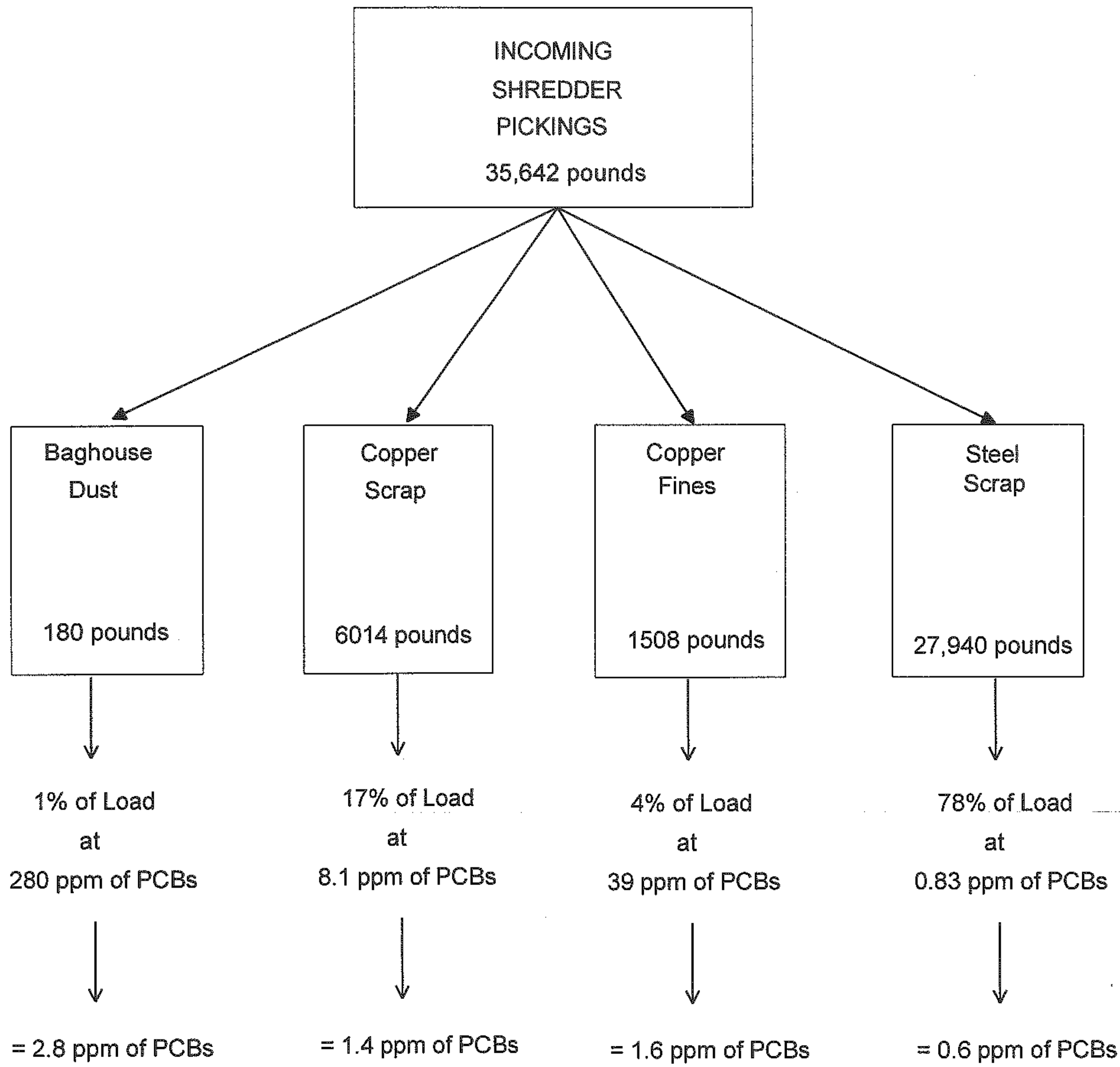
TABLE 3

SUMMARY OF AIR MONITORING RESULTS
Chicago International Exporting

Station	Day	PCB's (mg/m^3)	PCB PEL (mg/m^3)	Lead (mg/m^3)	Lead PEL (mg/m^3)
North	1	LT 0.00042	0.5	LT 0.0010	0.05
	2	LT 0.0038	0.5	LT 0.0023	0.05
	3	LT 0.0033	0.5	LT 0.0021	0.05
	3 (duplicate)	LT 0.0036	0.5	LT 0.0023	0.05
East	1	LT 0.00042	0.5	LT 0.0010	0.05
	2	LT 0.0036	0.5	LT 0.0024	0.05
	3	LT 0.0031	0.5	LT 0.0021	0.05
South	1	LT 0.00042	0.5	LT 0.0010	0.05
	2	LT 0.0036	0.5	LT 0.0025	0.05
	3	LT 0.0031	0.5	LT 0.0021	0.05

Notes:
LT indicates result was less than the detection limit shown. mg/m^3 means milligrams per cubic meter.
PEL is OSHA's Permissible Exposure Level.



Total = 6.4 ppm of PCBs in load of Shredder Pickings

FIGURE 2

Clean World Engineering, Ltd.

PCBs in Shredder Pickings

CHICAGO INTERNATIONAL EXPORTING
4020 S. WENTWORTH AVE.
CHICAGO, ILLINOIS

9-5-95	Drawing Not To Scale

DRAFT

4.0 STATISTICAL ANALYSIS

This section presents the results of our statistical analyses on the three rounds of process stream samples. Because lead and PCBs were not detected at a detection limit significantly below OSHA's permissible exposure limits, statistical analyses were not performed on the air monitoring results.

As indicated in the sampling plan, the analytical results were subjected to the Hypothesis Test for Monitoring Programs as detailed in Appendix A.2 of USEPA's Sampling Guidance for Scrap Metal Shredders: Field Manual (EPA 747-R-93-009, August 1993). Based on this approach, the hypothesis that the materials of concern do not exceed the regulatory standards for PCBs and lead is being tested. In CIE's case, the applicable standards are:

- 50 parts per million (ppm) of PCBs;
- 5 milligrams per liter (mg/l) of TCLP lead; and
- 1300 ppm of total lead (which roughly corresponds to 5 mg/l of TCLP lead and is being termed "TCLP-equivalent" in this report)

The Hypothesis Test for Monitoring Programs approach involves a comparison of the average concentration of a particular material to a numerical cutoff value. If the average concentration is less than the cutoff value, the test concludes that the material is in compliance with the standard. If not, the test concludes that the material is in violation of the standard. This test takes into consideration laboratory and sampling errors.

The cutoff value is determined by the following equation:

$$CutoffValue = (Standard) + (t - value)\left(\frac{Standard\ Deviation}{\sqrt{Sample\ Size}}\right)$$

The *t-value* for 3 composite samples is 2.90. Table 4 summarizes the Hypothesis Test results.

TABLE 4
Hypothesis Testing For Monitoring Programs
Chicago International Exporting

Material	Round 1	Round 2	Round 3	Standard Deviation	Average	Cut-Off Value	50 ppm Exceedance?
PCB RESULTS							
Baghouse Dust	224	274	283	31.8	260.3	103.2	Yes
Seperator Table Fluff	129	71	140	37.1	113.3	112.1	Yes
Copper Fines	19	31	165	81.1	71.7	185.7	No
Copper Scrap	23	19	80	34.1	40.7	107.1	No
Steel Scrap	0.35	0.94	7.8	4.1	3.0	56.9	No
TCLP LEAD RESULTS							
Baghouse Dust	0.14	3.81	5.57	2.8	3.2	9.6	No
Seperator Table Fluff	51.9	29.3	37.8	11.4	39.7	24.1	Yes
TOTAL LEAD RESULTS							
Copper Fines	2100	481	230	1015.0	937.0	2999.4	No
Copper Scrap	2	350	40	190.9	130.7	1619.6	No
Steel Scrap	2200	84.7	220	1184.1	834.9	3282.6	No

5.0 CONCLUSIONS

In general, PCBs and lead appear to be present in all materials sampled and appear to be concentrated in the dust, dirt and finely shredded organic material (e.g., foam, wire wrapping, etc.) associated with each process stream.

The two process stream materials containing the highest concentrations of PCBs and/or lead are the baghouse dust and separator table fluff. Both materials consist entirely of dust, dirt and finely shredded organic material. These materials consistently and clearly exceeded the 50 ppm threshold level for PCBs and must therefore be managed and disposed of as a PCB waste in accordance with the PCB rules under 40 CFR Part 761.

The air table fluff also consistently and clearly exceeded the 5 mg/l threshold level for TCLP lead and must therefore be additionally managed and disposed of as a hazardous waste in accordance with the hazardous waste regulations under 40 CFR Part 260. Statistical analysis on the baghouse dust indicates that it does not exceed the TCLP lead standard.

The copper fines appear to be below 50 ppm of PCBs based on the statistical analysis. However, one of the three analyses exceeded 50 ppm by a wide margin so four (4) additional rounds of sampling for PCBs (for a total of 7 rounds) will be performed to better characterize the concentration of PCBs over the long term. The samples will also be analyzed for lead since one of the three samples exceeded the 1300 ppm "TCLP-equivalent" standard for lead. If it appears that the 1300 ppm "TCLP-equivalent" standard is exceeded, one or two of the samples will be additionally analyzed for TCLP lead.

Statistical analyses on the scrap copper and scrap steel results indicate that both materials are below the 50 ppm threshold level for PCBs and the 1300 ppm "TCLP-equivalent" level for lead.

Finally, the shredder pickings also appear to be below the 50 ppm threshold level for PCBs based on the first round of sampling. The first round of sampling resulted in a determination that the PCBs are concentrated in the fine material and the fine material comprises a small percentage of a typical load of shredder pickings. In a worst case scenario, even if a load of shredder pickings contained 5-10 times the proportion of fine material, as represented by baghouse dust and copper fines, the load would still fall under the 50 ppm threshold for PCBs.

Although the second round of sampling on the shredder pickings did not confirm the first round, the second round sampleis not considered representative due the wide variance between the sample and its duplicate.

Except for the copper fines and pavement sweepings, which will be sampled on an ongoing basis for another year at least, continued sampling of the process streams is not considered necessary unless either the regulations change or different materials are processed. Addendum 1 to the sampling plan and Section VIII of the operating plan provide further detail on the schedule of ongoing sampling and the protocol that will be followed.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

NET Job Number: 95.05131

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130
A2LA Cert. No.: 0453-01

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of NET, Inc. for analysis.

Project Description: Process Stream Sampling; C055-076

Sample Number	Sample Description	Date Taken	Date Received
313381	BDC-1	07/13/1995	07/14/1995
313382	STF-1	07/13/1995	07/14/1995
313383	BDS-1	07/13/1995	07/14/1995
313384	CF-1	07/13/1995	07/14/1995
313385	CS-1	07/13/1995	07/14/1995
313386	SP-BD-1	07/13/1995	07/14/1995
313387	SP-CS-1	07/13/1995	07/14/1995
313388	SS-1	07/13/1995	07/14/1995
313389	SP-SS-1	07/14/1995	07/14/1995
313390	SP-CF-1B	07/14/1995	07/14/1995

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow NET Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Jean-Pierre C. Rouanet
Operations Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

Sample No. : 313381

NET Job No.: 95.05131

Sample Description: BDC-1
Process Stream Sampling; C055-076

Date Taken: 07/13/1995
Time Taken: 11:25

Date Received: 07/14/1995
Time Received: 16:32

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.0		%	0.1	07/20/1995	rkw	2540 (4)
TCLP Metals Extraction	Leached				07/19/1995	kab	1311 (1)
TCLP-Lead, ICP	<0.080		mg/L	0.080	07/25/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/18/1995	btl	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1221	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1232	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1242	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1248	195,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1254	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1260	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	07/23/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	07/23/1995	seh	8080 (1)

D1000 : Parameter analysis performed at a 1000x dilution.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

Sample No. : 313382

NET Job No.: 95.05131

Sample Description: STF-1
Process Stream Sampling; C055-076

Date Taken: 07/13/1995
Time Taken: 08:50

Date Received: 07/14/1995
Time Received: 16:32

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.4		%	0.1	07/20/1995	rkw	2540 (4)
TCLP Metals Extraction	Leached				07/19/1995	kab	1311 (1)
TCLP-Lead, ICP	51.9		mg/L	0.080	07/25/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/18/1995	btl	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<25,000	D500	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1221	<25,000	D500	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1232	<25,000	D500	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1242	<25,000	D500	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1248	129,000	D500	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1254	<25,000	D500	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1260	<25,000	D500	ug/kg	50	07/23/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	07/23/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	07/23/1995	seh	8080 (1)

D500 : Parameter analysis performed at a 500x dilution.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

Sample No. : 313383

NET Job No.: 95.05131

Sample Description: BDS-1
Process Stream Sampling; C055-076

Date Taken: 07/13/1995
Time Taken: 11:45

Date Received: 07/14/1995
Time Received: 16:32

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	98.4		%	0.1	07/20/1995	rkw	2540 (4)
TCLP Metals Extraction	Leached				07/19/1995	kab	1311 (1)
TCLP-Lead, ICP	0.140		mg/L	0.080	07/25/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/18/1995	btl	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1221	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1232	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1242	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1248	224,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1254	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1260	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	07/23/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	07/23/1995	seh	8080 (1)

D1000 : Parameter analysis performed at a 1000x dilution.

NET® NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

Sample No. : 313384

NET Job No.: 95.05131

Sample Description: CF-1
Process Stream Sampling; C055-076

Date Taken: 07/13/1995
Time Taken: 13:20

Date Received: 07/14/1995
Time Received: 16:32

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.8		%	0.1	07/20/1995	rkw	2540 (4)
Lead, ICP	2,100		ug/g	4.0	07/25/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/18/1995	btl	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1221	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1232	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1242	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1248	19,000	D100	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1254	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1260	<50		ug/kg	50	07/21/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	90.0		%	31-128	07/21/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Masked		%	29-128	07/21/1995	seh	8080 (1)

D100 : Parameter analysis performed at a 100x dilution.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

Sample No. : 313385

NET Job No.: 95.05131

Sample Description: CS-1
Process Stream Sampling; C055-076

Date Taken: 07/13/1995
Time Taken: 09:45

Date Received: 07/14/1995
Time Received: 16:32

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.6		%	0.1	07/20/1995	rkw	2540 (4)
Lead, ICP	<4.0		ug/g	4.0	07/25/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/18/1995	btl	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1221	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1232	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1242	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1248	23,000	D100	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1254	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1260	<50		ug/kg	50	07/21/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	106.0		%	31-128	07/21/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Masked		%	29-128	07/21/1995	seh	8080 (1)

D100 : Parameter analysis performed at a 100x dilution.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

Sample No. : 313386

NET Job No.: 95.05131

Sample Description: SP-BD-1
Process Stream Sampling; C055-076

Date Taken: 07/13/1995
Time Taken: 15:45

Date Received: 07/14/1995
Time Received: 16:32

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	97.5		%	0.1	07/20/1995	rkw	2540 (4)
Lead, ICP	1,300		ug/g	4.0	07/25/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/18/1995	btl	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1221	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1232	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1242	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1248	280,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1254	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1260	<50,000	D1000	ug/kg	50	07/23/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	07/23/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	07/23/1995	seh	8080 (1)

D1000 : Parameter analysis performed at a 1000x dilution.

NET ® NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

Sample No. : 313387

NET Job No.: 95.05131

Sample Description: SP-CS-1
Process Stream Sampling; C055-076

Date Taken: 07/13/1995
Time Taken: 15:00

Date Received: 07/14/1995
Time Received: 16:32

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	100		%	0.1	07/20/1995	rkw	2540 (4)
Lead, ICP	81		ug/g	4.0	07/25/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/18/1995	btl	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1221	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1232	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1242	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1248	8,100	D50	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1254	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1260	<50		ug/kg	50	07/21/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	107.0		%	31-128	07/21/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Masked		%	29-128	07/21/1995	seh	8080 (1)

D50 : Parameter analysis performed at a 50x dilution.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

Sample No. : 313388

NET Job No.: 95.05131

Sample Description: SS-1
Process Stream Sampling; C055-076

Date Taken: 07/13/1995
Time Taken: 13:50

Date Received: 07/14/1995
Time Received: 16:32

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.1		%	0.1	07/20/1995	rkw	2540 (4)
Lead, ICP	2,200		ug/g	4.0	07/25/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/18/1995	btl	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1221	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1232	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1242	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1248	350	D2	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1254	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1260	<50		ug/kg	50	07/21/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	116.0		%	31-128	07/21/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Masked		%	29-128	07/21/1995	seh	8080 (1)

D2 : Parameter analysis performed at a 2x dilution.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

Sample No. : 313389

NET Job No.: 95.05131

Sample Description: SP-SS-1
Process Stream Sampling; C055-076

Date Taken: 07/14/1995
Time Taken: 14:05

Date Received: 07/14/1995
Time Received: 16:32

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	100		%	0.1	07/20/1995	rkw	2540 (4)
Lead, ICP	1,700		ug/g	4.0	07/25/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/18/1995	btl	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1221	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1232	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1242	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1248	830	D5	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1254	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1260	<50		ug/kg	50	07/21/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	120.0		%	31-128	07/21/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	124.0		%	29-128	07/21/1995	seh	8080 (1)

D5 : Parameter analysis performed at a 5x dilution.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

07/25/1995

Sample No. : 313390

NET Job No.: 95.05131

Sample Description: SP-CF-1B
Process Stream Sampling; C055-076

Date Taken: 07/14/1995
Time Taken: 11:50

Date Received: 07/14/1995
Time Received: 16:32

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.6		%	0.1	07/20/1995	rkw	2540 (4)
Lead, ICP	1,200		ug/g	4.0	07/25/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/18/1995	btl	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1221	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1232	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1242	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1248	39,000	D500	ug/kg	50	07/23/1995	seh	8080 (1)
PCB-1254	<50		ug/kg	50	07/21/1995	seh	8080 (1)
PCB-1260	<50		ug/kg	50	07/21/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	116.0		%	31-128	07/21/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Masked		%	29-128	07/21/1995	seh	8080 (1)

D500 : Parameter analysis performed at a 500x dilution.

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

NET® NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY Chicago International Exporting
ADDRESS 4020 S. Wentworth Chicago 60609
PHONE 312 924-4004 FAX
PROJECT NAME/LOCATION Process Stream Sampling
PROJECT NUMBER 6055-076
PROJECT MANAGER Glen Anderson

REPORT TO: International Engineers
INVOICE TO: Chicago Int. Exp.
P.O. NO.
NET QUOTE NO. 95-0404

SAMPLED BY
Glen Anderson (PRINT NAME) — [signature] SIGNATURE
(PRINT NAME) — SIGNATURE

To assist us in selecting the proper method
Is this work being conducted for regulatory compliance monitoring? Yes ___ No ___
Is this work being conducted for regulatory enforcement action? Yes X No ___
Which regulations apply: RCRA ___ NPDES Wastewater ___ UST ___ Drinking Water ___ CERCLA Other X None ___

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	HCl	NaOH	HNO_3	H_2SO_4	OTHER	PCB 8080	lead 7420	TCLP lead 1311								COMMENTS
7-13	1125	~~BD-1~~ 6PA BDC-1	S							4	X		X								Run SP Sample Per C.O.C. Glen Anderson 7/17/95
7-13	1320	CF-1	S							2	X	X									
7-13	0945	CS-1	S							4	X	X									
7-13	0850	STF-1	S							4	X		X								
7-13	1145	BDS-1	S							4	X		X								
7-13	1545	SP-BD-1	S					6PA		4	X	X									~~Wait for instruction~~ Run Per C.O.C. BW
7-13	1500	SP-CS-1	S					6PA		4	X	X									~~" " " "~~
~~7-13~~	~~1530~~	~~SP-CF-1~~ 6PA 7-14	S							2	X	X									~~" " " "~~ Do not analyze
7-13	1350	SS-1	S							2	X	X									
7-14	1405	SP-SS-1	S							2	X	X									~~Wait for instruction~~ Run Per C.O.C. BW
7-14	1150	SP-CF-1B	S							2	X	X									~~" " "~~

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO — FIELD FILTERED? YES / NO N/A
COC SEALS PRESENT AND INTACT? YES / NO — VOLATILES FREE OF HEADSPACE? ~~YES / NO~~ N/A
TEMPERATURE UPON RECEIPT: 0°C — Bottles supplied by NET? YES / NO — ON ICE

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA ___
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS ___ DATE ___

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
[signature]	7-14-95	1632		[signature]	7/14/95	1632	B.W.

METHOD OF SHIPMENT: Drop off by me

REMARKS: I (Glen Anderson) will call Brian Wanner to provide further instruction on "SP" samples. They will have to be combined a certain way.

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK

CHAIN OF CUSTODY

A chain of custody is one of the first steps in sample control in the laboratory. The chain of custody is a "contract" between the client and the laboratory to insure that all information from the client is transmitted to the laboratory in an ordered fashion.

Procedure

A A three copy chain of custody shall be used. A ball-point pen, either blue or black shall be used, pressing hard to make all three copies.

B Writing legibly, or printing fill out the chain of custody as follows:

1. Name of Company
   Address of Company
   Phone and Fax Number
2. Project Name/Location
   Project Number
   Project Manager
3. Report To
   Name and Address, if different from above (enter in remark section)
4. Invoice to
   Name and Address, if different from above (enter in remark section)
5. Purchase Order Number and NET Quote Number (if applicable)
6. Sample Information
   Date and Time
   Sample ID/Description
   Grab or Comp
   \# of Containers/Type
   Matrix
   Preserved - Y/N
7. Parameters to be tested on samples
   Check parameter squares with sample descriptions
8. Comments
   Special Methods and Detection Limits
   Known Sample Contamination
9. Sample Disposal Instructions

THE WORK WILL BE UNDERTAKEN IN ACCORDANCE WITH NET'S STANDARD TERMS AND CONDITIONS, WHICH INCLUDE THE REQUIREMENT THAT PAYMENT IS DUE WITHIN THIRTY (30) DAYS FROM THE DATE OF INVOICE.

NET NATIONAL ENVIRONMENTAL TESTING, INC.®

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/07/1995

NET Job Number: 95.05396

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130
A2LA Cert. No.: 0453-01

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of NET, Inc. for analysis.

Project Description: CIE C055-

Sample Number	Sample Description	Date Taken	Date Received
314609	STF-2; Composite	07/24/1995	07/24/1995
314610	BDC-2; Composite	07/24/1995	07/24/1995
314611	BDS-2; Composite	07/24/1995	07/24/1995
314612	CF-2; Composite	07/24/1995	07/24/1995
314613	CS-2; Composite	07/24/1995	07/24/1995
314614	SS-2; Composite	07/24/1995	07/24/1995

RECEIVED AUG - 9 1995

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow NET Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Jean-Pierre C. Rouanet
Operations Manager

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/07/1995

Sample No. : 314609

NET Job No.: 95.05396

Sample Description: STF-2; Composite
CIE C055-

Date Taken: 07/24/1995
Time Taken: 09:00

Date Received: 07/24/1995
Time Received: 16:48

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.4		%	0.1	08/01/1995	seh	2540 (4)
TCLP Metals Extraction	leached				07/27/1995	seh	1311 (1)
TCLP-Lead, ICP	29.3		mg/L	0.080	08/02/1995	mic	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/26/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1221	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1232	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1242	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1248	71,000	DX	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1254	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1260	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	07/29/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	07/29/1995	seh	8080 (1)

D : Parameter analyzed at a dilution due to matrix interference.
DX : Parameter exceeds calibration range, analysis performed on a dilution.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/07/1995

Sample No. : 314610

NET Job No.: 95.05396

Sample Description: BDC-2; Composite
CIE C055-

Date Taken: 07/24/1995
Time Taken: 09:30

Date Received: 07/24/1995
Time Received: 16:48

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	98.4		%	0.1	08/01/1995	seh	2540 (4)
TCLP Metals Extraction	leached				07/27/1995	seh	1311 (1)
TCLP-Lead, ICP	3.81		mg/L	0.080	08/02/1995	mic	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/26/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1221	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1232	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1242	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1248	76,000	DX	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1254	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1260	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	07/29/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	07/29/1995	seh	8080 (1)

D : Parameter analyzed at a dilution due to matrix interference.
DX : Parameter exceeds calibration range, analysis performed on a dilution

NET® NATIONAL ENVIRONMENTAL TESTING, INC.

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Bartlett, IL 60103
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ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/07/1995

Sample No. : 314611

NET Job No.: 95.05396

Sample Description: BDS-2; Composite
CIE C055-

Date Taken: 07/24/1995
Time Taken: 10:00

Date Received: 07/24/1995
Time Received: 16:48

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	95.2		%	0.1	08/01/1995	seh	2540 (4)
TCLP Metals Extraction	leached				07/27/1995	seh	1311 (1)
TCLP-Lead, ICP	<0.080		mg/L	0.080	08/02/1995	mic	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				07/26/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1221	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1232	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1242	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1248	274,000	DX	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1254	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1260	<25,000	D	ug/kg	50	07/29/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	07/29/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	07/29/1995	seh	8080 (1)

D : Parameter analyzed at a dilution due to matrix interference.
DX : Parameter exceeds calibration range, analysis performed on a dilution

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/07/1995

Sample No. : 314612

NET Job No.: 95.05396

Sample Description: CF-2; Composite
CIE C055-

Date Taken: 07/24/1995
Time Taken: 10:45

Date Received: 07/24/1995
Time Received: 16:48

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.2		%	0.1	08/01/1995	seh	2540 (4)
Lead, GFAA	481		ug/g	0.25	08/02/1995	mic	7421 (1)
Prep PCBs 8080 NonAqueous	extracted				07/26/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1221	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1232	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1242	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1248	31,000	DX	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1254	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1260	<50		ug/kg	50	07/27/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	Masked		%	31-128	07/27/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	69.0		%	29-128	07/27/1995	seh	8080 (1)

DX : Parameter exceeds calibration range, analysis performed on a dilution

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/07/1995

Sample No. : 314613

NET Job No.: 95.05396

Sample Description: CS-2; Composite
CIE C055-

Date Taken: 07/24/1995
Time Taken: 11:25

Date Received: 07/24/1995
Time Received: 16:48

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.9		%	0.1	08/01/1995	seh	2540 (4)
Lead, GFAA	350		ug/g	0.25	08/04/1995	mic	7421 (1)
Prep PCBs 8080 NonAqueous	extracted				07/26/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1221	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1232	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1242	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1248	19,000	DX	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1254	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1260	<50		ug/kg	50	07/27/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	67.0		%	31-128	07/27/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	119.0		%	29-128	07/27/1995	seh	8080 (1)

DX : Parameter exceeds calibration range, analysis performed on a dilution

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ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/07/1995

Sample No. : 314614

NET Job No.: 95.05396

Sample Description: SS-2; Composite
CIE C055-

Date Taken: 07/24/1995
Time Taken: 11:05

Date Received: 07/24/1995
Time Received: 16:48

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.7		%	0.1	08/01/1995	seh	2540 (4)
Lead, GFAA	84.7		ug/g	0.25	08/02/1995	mic	7421 (1)
Prep PCBs 8080 NonAqueous	extracted				07/26/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1221	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1232	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1242	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1248	940	DX	ug/kg	50	07/29/1995	seh	8080 (1)
PCB-1254	<50		ug/kg	50	07/27/1995	seh	8080 (1)
PCB-1260	<50		ug/kg	50	07/27/1995	seh	8080 (1)
Surr: Tetrachloroxylene (TCX)	112.0		%	31-128	07/27/1995	seh	8080 (1)
Surr: Decachlorobiphenyl (DCB)	44.0		%	29-128	07/27/1995	seh	8080 (1)

DX : Parameter exceeds calibration range, analysis performed on a dilution

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) <u>Methods 1000 through 9999:</u> see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) <u>Methods 100 through 499:</u> see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) <u>Methods 600 through 625:</u> see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) <u>Methods 500 through 599:</u> see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

NET® [illegible]ION ENVIRONMENTAL TESTING, INC.

[illegible] OF [illegible] RECORD

COMPANY Chicago International / Exporting
ADDRESS 4020 S. Wentworth
PHONE 312/924-4004 FAX 708-260-0797
PROJECT NAME/LOCATION CIE
PROJECT NUMBER 6055-
PROJECT MANAGER Glen Anderson / International Engineers

REPORT TO: Int. Eng.
INVOICE TO: Chi. Int. Exp.
P.O. NO.
NET QUOTE NO.

SAMPLED BY Glen Anderson (PRINT NAME) [signature] SIGNATURE
(PRINT NAME) SIGNATURE

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	HCl	NaOH	HNO_3	H_2SO_4	OTHER	PCBs 8080	TCLP lead	lead							
7-24	0900	STF-2 *			X					1	X	X								
7-24	0930	BDC-2			X					1	X	X								
7-24	1045	CF-2			X					1	X		X							
7-24	1000	BDS-2			X					1	X	X								
7-24	1125	CS-2			X					1	X		X							
7-24	1105	SS-2			X					1	X		X							

(# and Type of Containers: HCl, NaOH, HNO_3, H_2SO_4, OTHER; ANALYSES)

To assist us in selecting the proper method
Is this work being conducted for regulatory compliance monitoring? Yes ___ No ___
Is this work being conducted for regulatory enforcement action? Yes X No ___
Which regulations apply: RCRA ___ NPDES Wastewater ___ UST ___ Drinking Water ___ Other X CERCLA None ___

COMMENTS

* Run Total lead if there is insufficient sample for TCLP-PB. Per Glen Anderson 7/24/95 B.

7-day TAT.

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO FIELD FILTERED? YES / NO N/A
COC SEALS PRESENT AND INTACT? YES / NO VOLATILES FREE OF HEADSPACE? YES / NO N/A
TEMPERATURE UPON RECEIPT: Not in cooler
Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA ___
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS X DATE ___

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
[signature]	7-24-95			[signature]	7-24-95	16:48 ~~7:21~~	Karen L Valdez

METHOD OF SHIPMENT

REMARKS:

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK

CHAIN OF CUSTODY

A chain of custody is one of the first steps in sample control in the laboratory. The chain of custody is a "contract" between the client and the laboratory to insure that all information from the client is transmitted to the laboratory in an ordered fashion.

Procedure

A A three copy chain of custody shall be used. A ball-point pen, either blue or black shall be used, pressing hard to make all three copies.

B Writing legibly, or printing fill out the chain of custody as follows:

1. Name of Company
   Address of Company
   Phone and Fax Number
2. Project Name/Location
   Project Number
   Project Manager
3. Report To
   Name and Address, if different from above (enter in remark section)
4. Invoice to
   Name and Address, if different from above (enter in remark section)
5. Purchase Order Number and NET Quote Number (if applicable)
6. Sample Information
   Date and Time
   Sample ID/Description
   Grab or Comp
   # of Containers/Type
   Matrix
   Preserved - Y/N
7. Parameters to be tested on samples
   Check parameter squares with sample descriptions
8. Comments
   Special Methods and Detection Limits
   Known Sample Contamination
9. Sample Disposal Instructions

THE WORK WILL BE UNDERTAKEN IN ACCORDANCE WITH NET'S STANDARD TERMS AND CONDITIONS, WHICH INCLUDE THE REQUIREMENT THAT PAYMENT IS DUE WITHIN THIRTY (30) DAYS FROM THE DATE OF INVOICE.

NET® NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/22/1995

NET Job Number: 95.06097

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130
A2LA Cert. No.: 0453-01

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of NET, Inc. for analysis.

Project Description: CIE

Sample Number	Sample Description	Date Taken	Date Received
317187	CF-3; Composite	08/14/1995	08/14/1995
317188	SP-2D; Composite	08/14/1995	08/14/1995
317189	CS-3; Composite	08/14/1995	08/14/1995
317190	SP-2; Composite	08/14/1995	08/14/1995
317191	SS-3; Composite	08/14/1995	08/14/1995
317192	BDSC-3; Composite	08/14/1995	08/14/1995
317193	STF-3; Composite	08/14/1995	08/14/1995

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow NET Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:
Mary Pearson

Mary Pearson
Project Manager

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/22/1995

Sample No. : 317187

NET Job No.: 95.06097

Sample Description: CF-3; Composite
CIE

Date Taken: 08/14/1995
Time Taken: 12:10

Date Received: 08/14/1995
Time Received: 15:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.2		%	0.1	08/16/1995	sdf	2540 (4)
Lead, ICP	230		ug/g	4.0	08/22/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				08/15/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<25,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1221	<25,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1232	<25,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1242	<25,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1248	165,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1254	<25,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1260	<25,000		ug/kg	50	08/20/1995	llr	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	08/20/1995	llr	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	08/20/1995	llr	8080 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/22/1995

Sample No. : 317189

NET Job No.: 95.06097

Sample Description: CS-3; Composite
CIE

Date Taken: 08/14/1995
Time Taken: 09:05

Date Received: 08/14/1995
Time Received: 15:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.8		%	0.1	08/16/1995	sdf	2540 (4)
Lead, ICP	<80	D	ug/g	4.0	08/22/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				08/15/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1221	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1232	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1242	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1248	80,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1254	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1260	<500		ug/kg	50	08/20/1995	llr	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	08/20/1995	llr	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	08/20/1995	llr	8080 (1)

D : Parameter analyzed at a dilution due to matrix interference.

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Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/22/1995

Sample No. : 317188

NET Job No.: 95.06097

Sample Description: SP-2D; Composite
CIE

Date Taken: 08/14/1995
Time Taken: 13:00

Date Received: 08/14/1995
Time Received: 15:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.7		%	0.1	08/16/1995	sdf	2540 (4)
Lead, ICP	<20	D	ug/g	4.0	08/22/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				08/15/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1221	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1232	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1242	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1248	2,900		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1254	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1260	<500		ug/kg	50	08/20/1995	llr	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	08/20/1995	llr	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	08/20/1995	llr	8080 (1)

D : Parameter analyzed at a dilution due to matrix interference.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/22/1995

Sample No. : 317190

NET Job No.: 95.06097

Sample Description: SP-2; Composite CIE

Date Taken: 08/14/1995
Time Taken: 13:00

Date Received: 08/14/1995
Time Received: 15:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.7		%	0.1	08/16/1995	sdf	2540 (4)
Lead, ICP	<80	D	ug/g	4.0	08/22/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				08/15/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1221	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1232	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1242	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1248	63,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1254	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1260	<500		ug/kg	50	08/20/1995	llr	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	08/20/1995	llr	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	08/20/1995	llr	8080 (1)

D : Parameter analyzed at a dilution due to matrix interference.

NET
NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/22/1995

Sample No. : 317191

NET Job No.: 95.06097

Sample Description: SS-3; Composite
CIE

Date Taken: 08/14/1995
Time Taken: 13:15

Date Received: 08/14/1995
Time Received: 15:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.8		%	0.1	08/16/1995	sdf	2540 (4)
Lead, ICP	220		ug/g	4.0	08/22/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				08/15/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1221	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1232	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1242	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1248	7,800		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1254	<500		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1260	<500		ug/kg	50	08/20/1995	llr	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	08/20/1995	llr	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	08/20/1995	llr	8080 (1)

D : Parameter analyzed at a dilution due to matrix interference.

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Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/22/1995

Sample No. : 317192

NET Job No.: 95.06097

Sample Description: BDSC-3; Composite
CIE

Date Taken: 08/14/1995
Time Taken:

Date Received: 08/14/1995
Time Received: 15:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	96.6		%	0.1	08/16/1995	sdf	2540 (4)
TCLP Metals Extraction	Leached				08/17/1995	kab	1311 (1)
TCLP-Lead, ICP	0.376		mg/L	0.080	08/22/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				08/15/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1221	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1232	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1242	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1248	283,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1254	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1260	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	08/20/1995	llr	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	08/20/1995	llr	8080 (1)

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NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/22/1995

Sample No. : 317193

NET Job No.: 95.06097

Sample Description: STF-3; Composite
CIE

Date Taken: 08/14/1995
Time Taken: 10:25

Date Received: 08/14/1995
Time Received: 15:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	99.0		%	0.1	08/16/1995	sdf	2540 (4)
TCLP Metals Extraction	Leached				08/17/1995	kab	1311 (1)
TCLP-Lead, ICP	37.8		mg/L	0.080	08/22/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				08/15/1995	tls	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1221	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1232	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1242	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1248	140,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1254	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
PCB-1260	<5,000		ug/kg	50	08/20/1995	llr	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	08/20/1995	llr	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	08/20/1995	llr	8080 (1)

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

CHAIN OF CUSTODY

p. 1/2

Client Chicago International Export	Project Name CIE
Send Report to: Glen Anderson	
Address 1776	Collected by:
Telephone # 708/260-0200	Glen Anderson

Sample ID	~~Sampling Location~~ GPA Comments	Date	Time	GRAB	COMP	Sample Type	No. of Container	TCLP Lead	PCBs	Lead												
CF-3	GPA ~~Do n~~	8/14	1210		X	S	1		X	X												
SP-2D		8/14	1300		X	S	1		X	X												
S-3		8/14	0905		X	S	1		X	X												
STFF-3	Do not run	8/14	1025		X	S	1	X	X													
DSC-3		8/14			X	S	1	X	X													
CFD-3	8-14 GPA ~~Do not run~~ Do not run	8/14	1210		X	S	1		X	X												
SD-3	Do not run	8/14	0905			S	1		X	X												
SP-2		8/14	1300		X	S	1		X	X												
STF-3		8/14	1025		X	S	1	X	X													

Remarks:

Relinquished by:	Date	Time	Received by:	Date	Time
Glen Anderson	8-14	1300			

Shipping Notes/Lab Comments

Received for NET Midwest by: Karen L. Valdez 8/14/95 15:00

Samples Field Filtered: ___ Yes ___ No
Seals Intact Upon Receipt: ___ Yes ___ No ___ N/A

CHAIN OF CUSTODY

A chain of custody is one of the first steps in sample control in the laboratory. The chain of custody is a "contract" between the client and the laboratory to insure that all information from the client is transmitted to the laboratory in an ordered fashion.

Procedure

A A three copy chain of custody shall be used. A ball-point pen, either blue or black shall be used, pressing hard to make all three copies.

B Writing legibly, or printing fill out the chain of custody as follows:

1 Name of Company
Address of Company
Name of Person to Contact
Contact's Person Phone Number

2 Your Project Number
Purchase Order Number
Your Project Name

3 Sample Description(s)
Date, Time and Matrix

4 Parameters to be tested on samples
Check parameter squares with sample descriptions

5 Remarks
Turn Around Time (TAT) required (normal TAT, Rush, etc.)
Special Methods and Detection Limits, if needed

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

CHAIN OF CUSTODY

p. 2 of 2

Client Chicago International Exporting Send Report to: Glen Anderson	Project Name CIE
Address Telephone # 708/260-0200	Collected by: Glen Anderson

Collection Information									Parameters														
Sample ID	~~Sampling location~~ Comments	Date	Time	GRAB	COMP	Sample Type	No. of Container	TCLP Lead	PCBs	Lead													
✓ SS-3		8/14	1315		X	S	3		X	X													
RDSC-3D	Do not run	8/14			X	S	1	X	X														

Remarks:

Relinquished by:	Date	Time	Received by:	Date	Time
Glen Anderson	8/14	1300			

Shipping Notes/Lab Comments	Received for NET Midwest by:	Date	Time
	Karen L Valdez	8/14/95	15:00

Samples Field Filtered: ___ Yes ___ No
Seals Intact Upon Receipt: ___ Yes ___ No ___ N/A

CHAIN OF CUSTODY

A chain of custody is one of the first steps in sample control in the laboratory. The chain of custody is a "contract" between the client and the laboratory to insure that all information from the client is transmitted to the laboratory in an ordered fashion.

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Contact's Person Phone Number

2 Your Project Number
Purchase Order Number
Your Project Name

3 Sample Description(s)
Date, Time and Matrix

4 Parameters to be tested on samples
Check parameter squares with sample descriptions

5 Remarks
Turn Around Time (TAT) required (normal TAT, Rush, etc.)
Special Methods and Detection Limits, if needed

NET ® NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/31/1995

NET Job Number: 95.06329

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130
A2LA Cert. No.: 0453-01

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of NET, Inc. for analysis.

Project Description: CIE

Sample Number	Sample Description	Date Taken	Date Received
318275	BD-3B; Composite	08/21/1995	08/22/1995

RECEIVED SEP -5 1995

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow NET Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Mary Pearson

Mary Pearson
Project Manager

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Glen Anderson
INTERNATIONAL ENGINEERS
1776B S. Naperville
Suite 102
Wheaton, IL 60187-8100

08/31/1995

Sample No. : 318275

NET Job No.: 95.06329

Sample Description: BD-3B; Composite
CIE

Date Taken: 08/21/1995
Time Taken: 11:45

Date Received: 08/22/1995
Time Received: 16:47

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	97.6		%	0.1	08/22/1995	sdf	2540 (4)
TCLP Metals Extraction	LEACHED				08/25/1995	kab	1311 (1)
Lead, ICP	1,500		ug/g	4.0	08/30/1995	jmt	6010 (1)
TCLP-Lead, ICP	5.57		mg/L	0.080	08/29/1995	jmt	6010 (1)
Prep PCBs 8080 NonAqueous	extracted				08/24/1995	kdw	3540A (1)
PCBs 8080 NonAqueous							
PCB-1016	<500		ug/kg	50	08/28/1995	llr	8080 (1)
PCB-1221	<500		ug/kg	50	08/28/1995	llr	8080 (1)
PCB-1232	<500		ug/kg	50	08/28/1995	llr	8080 (1)
PCB-1242	<500		ug/kg	50	08/28/1995	llr	8080 (1)
PCB-1248	150,000		ug/kg	50	08/28/1995	llr	8080 (1)
PCB-1254	<500		ug/kg	50	08/28/1995	llr	8080 (1)
PCB-1260	<500		ug/kg	50	08/28/1995	llr	8080 (1)
PCB-1268	<500		ug/kg	50	08/28/1995	llr	8080 (1)
Surr: Tetrachloroxylene (TCX)	Diluted Out		%	31-128	08/28/1995	llr	8080 (1)
Surr: Decachlorobiphenyl (DCB)	Diluted Out		%	29-128	08/28/1995	llr	8080 (1)

PCB's analyzed at a 500x dilution.

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	: Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	: Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	: Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	: Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	: Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	: Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	: Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	: Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	: These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	: Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	: When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	: Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	: Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	: Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	: Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

NATIONAL ENVIRONMENTAL TESTING, INC.®

CHAIN OF CUSTODY RECORD

COMPANY Chicago International Exporting
ADDRESS
PHONE 708/260-0200 FAX
PROJECT NAME/LOCATION CIE
PROJECT NUMBER
PROJECT MANAGER Glen Anderson

REPORT TO: Glen Anderson
INVOICE TO:
P.O. NO.
NET QUOTE NO.

SAMPLED BY
Glen Anderson
(PRINT NAME) SIGNATURE Glen Anderson
(PRINT NAME) SIGNATURE

To assist us in selecting the proper method
Is this work being conducted for regulatory compliance monitoring? Yes X No
Is this work being conducted for regulatory enforcement action? Yes X No
Which regulations apply: RCRA ___ NPDES Wastewater ___ UST ___ Drinking Water ___ Other X IEPA/LA None ___

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	HCl	NaOH	HNO_3	H_2SO_4	OTHER	PCBs	TCLP Lead								COMMENTS
8/21	1145	BD-3B			X						X	X								
8/21	1210	SR-1			X						X									Hold until further notice
8/21	1220	SPAD-1			X						X									Hold until further notice

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO FIELD FILTERED? YES / NO N/A
COC SEALS PRESENT AND INTACT? YES / NO VOLATILES FREE OF HEADSPACE? YES / NO N/A
TEMPERATURE UPON RECEIPT: not in cooler Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS DATE

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
Glen Anderson	8/21	1647		Glen Anderson	8/21	1647	K O'Hara

METHOD OF SHIPMENT

REMARKS:

CHAIN OF CUSTODY

A chain of custody is one of the first steps in sample control in the laboratory. The chain of custody is a "contract" between the client and the laboratory to insure that all information from the client is transmitted to the laboratory in an ordered fashion.

Procedure

A A three copy chain of custody shall be used. A ball-point pen, either blue or black shall be used, pressing hard to make all three copies.

B Writing legibly, or printing fill out the chain of custody as follows:

1 Name of Company
  Address of Company
  Phone and Fax Number
2 Project Name/Location
  Project Number
  Project Manager
3 Report To
  Name and Address, if different from above (enter in remark section)
4 Invoice to
  Name and Address, if different from above (enter in remark section)
5 Purchase Order Number and NET Quote Number (if applicable)
6 Sample Information
  Date and Time
  Sample ID/Description
  Grab or Comp
  # of Containers/Type
  Matrix
  Preserved - Y/N
7 Parameters to be tested on samples
  Check parameter squares with sample descriptions
8 Comments
  Special Methods and Detection Limits
  Known Sample Contamination
9 Sample Disposal Instructions

THE WORK WILL BE UNDERTAKEN IN ACCORDANCE WITH NET'S STANDARD TERMS AND CONDITIONS, WHICH INCLUDE THE REQUIREMENT THAT PAYMENT IS DUE WITHIN THIRTY (30) DAYS FROM THE DATE OF INVOICE.

REPORT OF LABORATORY ANALYSIS

Chicago International Exporting
4020 S. Wentworth Ave.
Chicago, IL 60609

Client Account Number: 17967
Service Order #: 0000-6039
PACE Project ID: D50929.304

Attn:
Re: IH ANALYSIS

Report Date :

Laboratory Sample # / Analyte	Client Sample #	Det.Lim.	Volume/Time Unit	Main	Backup	Total	Air Concentration ppm	mg/M3
65-545728.4	SOUTH LEAD		2400.0 Liters					
Lead (Pb)		2.5	ug			LT 2.5		LT 0.0010
65-545732.0	SOUTH LEAD 13		1020.0 Liters					
Lead (Pb)		2.5	ug			LT 2.5		LT 0.0025
65-545736.2	SOUTH LEAD 21		1200.0 Liters					
Lead (Pb)		2.5	ug			LT 2.5		LT 0.0021
65-545716.4	SOUTH PCB		480.00 Liters					
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		LT 0.00042
65-545720.0	SOUTH PCB 14		56.00 Liters					
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		LT 0.0036
65-545724.2	SOUTH PCB 22		65.00 Liters					
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		LT 0.0031

CRV:40524

5930 McIntyre Street
Golden, CO 80403
TEL: 303-278-3400
FAX: 303-278-2121

REPORT OF LABORATORY ANALYSIS

Chicago International Exporting
4020 S. Wentworth Ave.
Chicago, IL 60609

Client Account Number: 17967
Service Order #: 0000-6039
PACE Project ID: D50929.304

Attn:
Re: IH ANALYSIS

Report Date :

Laboratory Sample # / Analyte	Client Sample #	Det.Lim.	Volume/Time Unit	Main	Backup	Total	Air Concentration ppm	mg/M3
65-545721.3	FIELD BLANK PCB 16							
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		
65-545726.8	NORTH LEAD		2400.0 Liters					
Lead (Pb)		2.5	ug			LT 2.5		LT 0.0010
65-545734.6	NORTH LEAD 17		1200.0 Liters					
Lead (Pb)		2.5	ug			LT 2.5		LT 0.0021
65-545737.5	NORTH LEAD 23		1100.0 Liters					
Lead (Pb)		2.5	ug			LT 2.5		LT 0.0023
		DATE ANALYZED 10/03/95						
65-545730.4	NORTH LEAD 9		1080.0 Liters					
Lead (Pb)		2.5	ug			LT 2.5		LT 0.0023
65-545714.8	NORTH PCB		480.00 Liters					
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		LT 0.00042
65-545718.0	NORTH PCB 10		53.00 Liters					
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		LT 0.0038
65-545722.6	NORTH PCB 18		61.00 Liters					
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		LT 0.0033
65-545725.5	NORTH PCB 24		56.00 Liters					
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		LT 0.0036
		DATE ANALYZED 10/03/95						

CRV:40524

5930 McIntyre Street
Golden, CO 80403
TEL: 303-278-3400
FAX: 303-278-2121

REPORT OF LABORATORY ANALYSIS

Chicago International Exporting
4020 S. Wentworth Ave.
Chicago, IL 60609

Client Account Number: 17967
Service Order #: 0000-6039
PACE Project ID: D50929.304

Attn:

Report Date :

Re: IH ANALYSIS

Laboratory Sample # / Analyte	Client Sample #	Det.Lim.	Volume/Time Unit	Main	Backup	Total	Air Concentration ppm	Air Concentration mg/M3
65-545727.1	CENTER LEAD		2400.0 Liters					
Lead (Pb)		2.5	ug			LT 2.5		LT 0.0010
65-545731.7	CENTER LEAD 11		1040.0 Liters					
Lead (Pb)		2.5	ug			LT 2.5		LT 0.0024
65-545735.9	CENTER LEAD 19		1200.0 Liters					
Lead (Pb)		2.5	ug			LT 2.5		LT 0.0021
65-545715.1	CENTER PCB		480.00 Liters					
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		LT 0.00042
65-545719.3	CENTER PCB 12		55.00 Liters					
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		LT 0.0036
65-545723.9	CENTER PCB 20		65.00 Liters					
PCB's - Screen by GC/ECD		0.2	ug			LT 0.2		LT 0.0031
65-545729.7	FIELD BLANK LEAD							
Lead (Pb)		NO ANALYSIS REQUESTED				HOLD		
65-545733.3	FIELD BLANK LEAD 15							
Lead (Pb)		2.5	ug			LT 2.5		
65-545717.7	FIELD BLANK PCB							
PCB's - Screen by GC/ECD		NO ANALYSIS REQUESTED				HOLD		

CRV:40524

5930 McIntyre Street
Golden, CO 80403
TEL: 303-278-3400
FAX: 303-278-2121

PACE INCORPORATED
ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

PACE Project Number : D50929.304
Service Order Number: 0000-6039
Report Date:

To: Chicago International Exporting
4020 S. Wentworth Ave.
Chicago, IL 60609

Attn: Mr. Glen Anderson

Client Reference: IH ANALYSIS

Method(s): OSHA ID121
NIOSH 5503

Results: The results for requested analyses are found in the following tables.

Discussion: The results contained in this report are expressed in terms of the concentration per sample volume and are computed based upon data provided by the client. These values are not necessarily comparable to any specific permissible exposure limit (PEL), nor have they been corrected for variation in temperature, altitude or atmospheric pressure.

PACE, Inc. has been AIHA accredited since 1977.

Laboratory data are filed and available upon request.

If you have any questions, please contact us at (303) 278-3400.

Approved By: Robert P. Di Rienzo
Industrial Hygiene
Laboratory Director

Enclosures
CRV:40524

5930 McIntyre Street
Golden, CO 80403
TEL: 303-278-3400
FAX: 303-278-2121

pace INCORPORATED

ENVIRONMENTAL LABORATORIES

An AIHA Accredited Laboratory

5930 McIntyre Street
Golden, CO 80403
1-800-239-7223
FAX 303-278-2121

INDUSTRIAL HYGIENE SAMPLE SUBMISSION FORM

IH 18689

CHAIN-OF-CUSTODY RECORD
Analytical Request

Fax (708) 260-0797

Client: Chicago Inter. Exporting
Address: 4020 S. Wentworth Ave.
Chicago IL 60609
Phone: (312) 924-4004

Report To: Glen Anderson
Verbal/Fax Results To: Glen Anderson
Bill To: Chicago Inter. Exports
P.O. # / Billing Reference:
Your Project Name / No.:

PACE Client No.:
PACE Project Manager:
PACE Project No.:
Requested Due Date: *

Sampled By (PRINT): John Feely
Sampler Signature: John Feely
Date Sampled: 9-25 thru 9-27-95

ITEM NO.	FIELD SAMPLE I.D.-DESCRIPTION	[illegible]	[illegible]	METHOD #	PACE NO.	MICROGRAMS	MG/M³	PPM	FIBERS/cc			PCB's 5503		Lead ID121						Original Vapor Scan *	REMARKS
9	North head	1080	270	5										X							
10	North PCB	53	260									X									
11	Center head	1040	260											X							
12	Center PCB	55	253									X									
13	South head	1020	255											X							
14	South PCB	56	255									X									
15	Field Blank head	—												X							
16	Field Blank PCB	—										X									

REQUESTED UNITS* (circle) (Where Applicable)

REQUESTED ANALYSES

COOLER NOS.	MEDIA PROVIDED	SHIPMENT METHOD OUT DATE	RETURNED DATE	ITEM NO.	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					John Feely CWE 9-28-95 4:00 p.m.	[illegible signature]	9/29/95	1000

Additional Comments

SEND ADDITIONAL MATERIALS
IE. SAMPLE KITS, COC FORMS, ETC.

ORIGINAL I

*SEE REVERSE SIDE FOR INSTRUCTIONS

P. 006

TEL:303-278-2121

OCT. -04' 95 (WED) 15:46 PACE

Pg 1 of 3

pace INCORPORATED
ENVIRONMENTAL LABORATORIES
An AIHA Accredited Laboratory

5930 McIntyre Street
Golden, CO 80403
1-800-219-7223
FAX 303-278-2121

INDUSTRIAL HYGIENE SAMPLE SUBMISSION FORM

IH 18689

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: Chicago International Exporting
Address: 4020 S. Wentworth Ave
Chicago IL 60609
Phone: (312) 924-4004

Report To: Glen Anderson → Fax (708) 260-0797
Verbal/Fax Results To: Glen Anderson
Bill To: Chicago International Exports
P.O. # / Billing Reference
Your Project Name / No.

PACE Client No.
PACE Project Manager
PACE Project No.
Requested Due Date:*

Sampled By (PRINT): John Feely
Sampler Signature: John Feely
Date Sampled: 9-25 thru 9-27-95

ITEM NO.	FIELD SAMPLE NO.-DESCRIPTION	AIR VOLUME (LITERS)	TIME (MINUTES)	MATRIX A	PACE NO.	MICROGRAMS	MG/M³	PPM	FIBERS/cc			PCBs 5503		Lead 7082				Original Vapor Scan*	REMARKS
1	North Lead	2400	240	S										X					
2	North PCB	480	240									X							
3	Center Lead	2400	240											X					
4	Center PCB	480	240									X							
5	South Lead	2400	240											X					
6	South PCB	480	240									X							
Hold 7	Field Blank Lead													X					
Hold 8	Field Blank PCB											X							

REQUESTED UNITS* (✓) (Where Applicable)

REQUESTED ANALYSES

COOLER NOS.	MEDIA PROVIDED	SHIPMENT METHOD OUT DATE	RETURNED DATE	ITEM NO.	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					John Feely CWE 9-28-95 4:00pm	[signature]	9/29/95	700

Additional Comments
Hold sample #s 7 & 8 until notified by us.

SEND ADDITIONAL MATERIALS
IE. SAMPLE KITS, COC FORMS, ETC.

ORIGINAL 1

*SEE REVERSE SIDE FOR INSTRUCTIONS

pace INCORPORATED
ENVIRONMENTAL LABORATORIES
An AIHA Accredited Laboratory

5930 McIntyre Street
Golden, CO 80403
1-800-219-7223
FAX 303-278-2121

INDUSTRIAL HYGIENE SAMPLE SUBMISSION FORM

IH 18689

CHAIN-OF-CUSTODY RECORD
Analytical Request

Fax (708) 260-0797

Client: Chicago Inter Exports
Address: 4020 S. Wentworth Ave
Chicago, IL 60609
Phone: (312) 924-4004

Report To: Glen Anderson
Verbal/Fax Results To: Glen Anderson
Bill To: Chicago Inter Exports
P.O. # / Billing Reference
Your Project Name / No.

PACE Client No.
PACE Project Manager
PACE Project No.
Requested Due Date: *

Sampled By (PRINT): John Feely
John Feely — Sampler Signature
9-27-95 — Date Sampled

REQUESTED UNITS* (✓) (Where Applicable): MICROGRAMS | MG/M³ | PPM | FIBERS/cc

REQUESTED ANALYSES: PCB 5503 | Lead ID121 | Original Vapor Scan *

ITEM NO	FIELD SAMPLE I.D. DESCRIPTION	[illegible]	[illegible]	[illegible]	PACE NO.	MICROGRAMS	MG/M³	PPM	FIBERS/cc			PCB 5503		Lead ID121	REMARKS
17	North Lead	1200	300	S										X	
18	North PCB	61	300									X			
19	Center Lead	1200	300											X	
20	Center PCB	65	300									X			
21	South Lead	1200	300											X	
22	South PCB	65	300									X			
23	North Lead	1100	275											X	
24	North PCB	56	275	✓								X			

COOLER NOS.	MEDIA PROVIDED	SHIPMENT METHOD: OUT DATE	RETURNED DATE	ITEM NO.	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					John Feely CWE 9-28-95 4:00pm	[signature]	9/29/95	1000

Additional Comments

SEND ADDITIONAL MATERIALS
IE. SAMPLE KITS, COC FORMS, ETC.

ORIGINAL 1

*SEE REVERSE SIDE FOR INSTRUCTIONS

pace
ONMENTAL LABORATORIES

5930 McIntyre
Golden, CO 80403
TEL: 303-278-3400
FAX: 303-278-2121

Fax Transmittal Cover Sheet

ate: 10-04-95

o: Glen ANDERSON

x #: (708) 260-0797

otal Number of Pages (Inclu ing This Cover): 8

ender: Bob DiRienzo ~~Sandra L. McCarty~~ Phone: (303) 278-3400

mments:

ou have questions regarding this fax transmission, please contact:

Sandra L. McCarty Phone: (303) 278-3400

esponse Requested? Yes ____ No ____

Prepared For:

Chicago International Exporting
4020 S. Wentworth Avenue
Chicago, Illinois 60609

DRAFT

Operating and Contingency Plan

IE Job No. C065-079

Prepared By:

International Engineers, Inc.
1776B S. Naperville Road, Suite 102
Wheaton, IL 60187-8100
(708) 260-0203
(708) 260-0797 (Fax)

Date: October 3, 1995

TABLE OF CONTENTS

I. GENERAL DESCRIPTION OF OPERATIONS

The Chicago International Exporting (CIE) site is located at 4004-4020 S. Wentworth Avenue, and 4000-4027 S. Wells Street, Chicago, Cook County, Illinois. The facility is an active scrap yard that reclaims copper, aluminum and steel from electric motors and other large pieces of machinery. Copper, aluminum and steel are sold to recyclers who further recycle it for use in new equipment. The plant site is approximately 2.5 acres in size located west of Dan Ryan Expressway, south of the Burlington Northern Railroad tracks and lying between Wentworth Avenue and Wells Street. This operating plan provides a brief description of the general operations at CIE and a process flow diagram; identifies the sources of hazardous material contamination and further describes the operating procedures being implemented to control any escaping of the hazardous material into the environment.

A. Process Flow Diagram

A process flow diagram of CIE is attached as Figure 1 of this document. In general, there are approximately 15 types of materials that are brought into the site. Of the 15 types of materials, approximately 9 types of material constitute the major portion of the incoming stream. They are:

1. Sealed units (compressors A/C),
2. Industrial compressors pumps,
3. Starters and generators,
4. Small motors,
5. Mix motors,
6. Large motors,
7. Shredder pickings from other scrap yards,
8. Large DC motors, and
9. Aluminum motors.

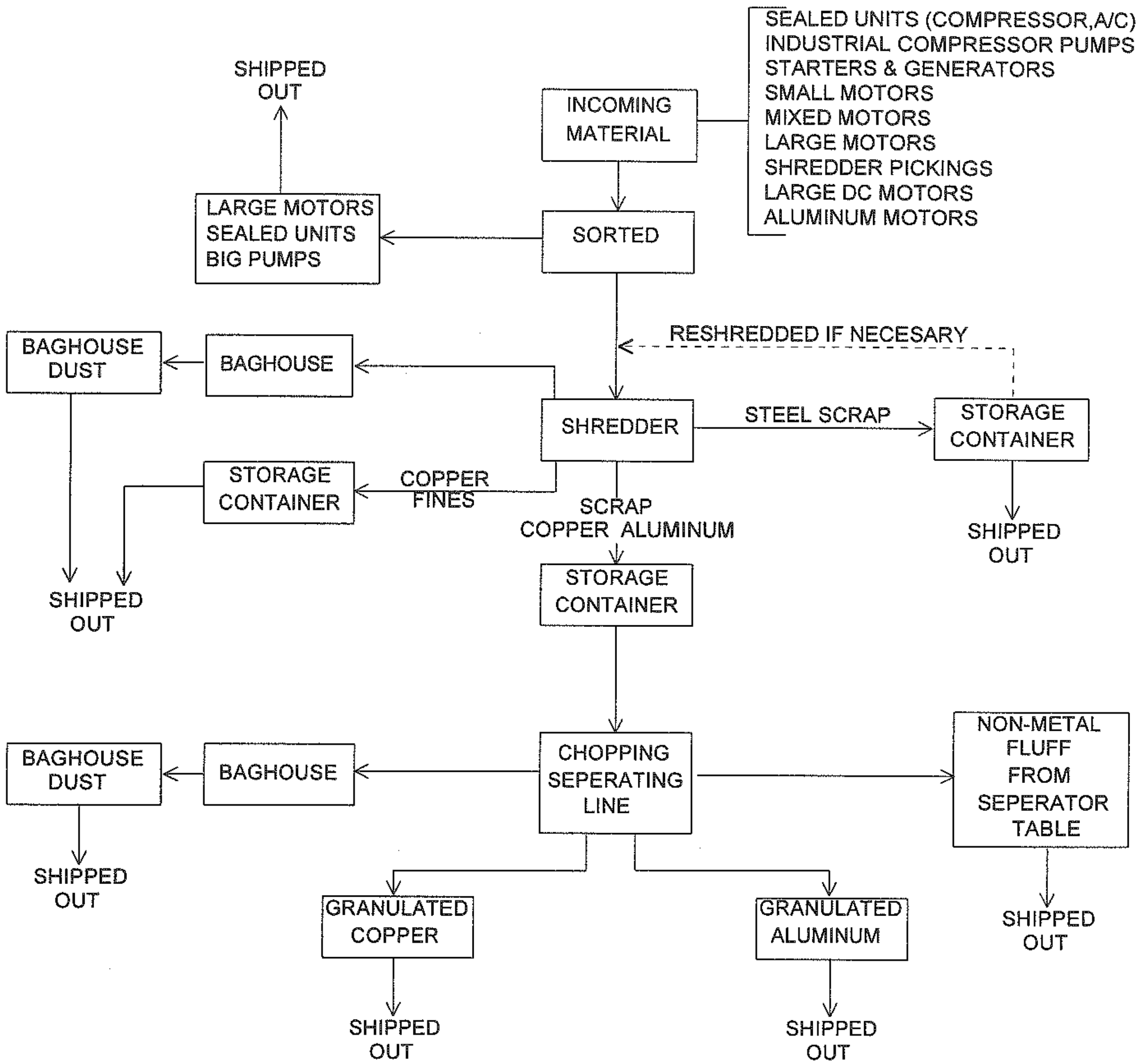


FIGURE 1

International Engineers, Inc.

PROCESS FLOW DIAGRAM

CHICAGO INTERNATIONAL EXPORTING
4020 S. WENTWORTH AVE.
CHICAGO, ILLINOIS

6-29-95	Drawing Not To Scale

The material is brought into the site via either truck or railcars. The material is off-loaded either near the front door entrance located on Wells Street (Point a) or either side of the railcar. As each material is brought into the site, it is weighed and sorted. Large motors, sealed units and big pumps are segregated and are shipped in as is condition to other sources as a recyclable product. The rest of the material is segregated into various types of materials (i.e., large motors, small motors, shredder pickings, etc.) and stored in the dedicated portion of the site. These materials are processed through the shredders for the recovery of copper and steel.

As the shredder is operated, the various material previously stored from incoming materials are picked up by an overhead crane or by a front end loader and dropped into a hopper on top of the conveyor leading into the shredder. Shredding consists of a hammer-like mechanism which continuously tears the motors apart into smaller pieces. Fine particulate matter is captured by a baghouse and the rest of the material drops into a conveyor belt which is perforated with small holes. This belt transports the processed material further into magnetic segregation units. A large metal rotary wheel takes the steel and drops into the conveyor belt that holds the steel scraps. The copper and aluminum is dropped into a separate conveyor belt that takes it to another container. Finally, shredded material, called copper fines, falls through the perforations of the conveyor belts. These copper fines are collected and stored on site for resale. The steel and copper scrap is sometimes re-ran through the shredder to break into smaller pieces. The copper and aluminum scrap is transported to the chopping/ separating lines which is located inside the main building. The chopping/ separating line breaks the scrap copper/aluminum into smaller pieces and segregates into either copper or aluminum. The end product is stored in 55 gallon containers which are subsequently shipped out to reprocessors. The chopping/ separating line is also controlled by a separate baghouse. This baghouse is equipped with a screw conveyor which empties the baghouse dust into a Gaylord box.

B. Site Map

A generalized site map of CIE is shown in attached Figure 2 showing various locations and the operations of the site.

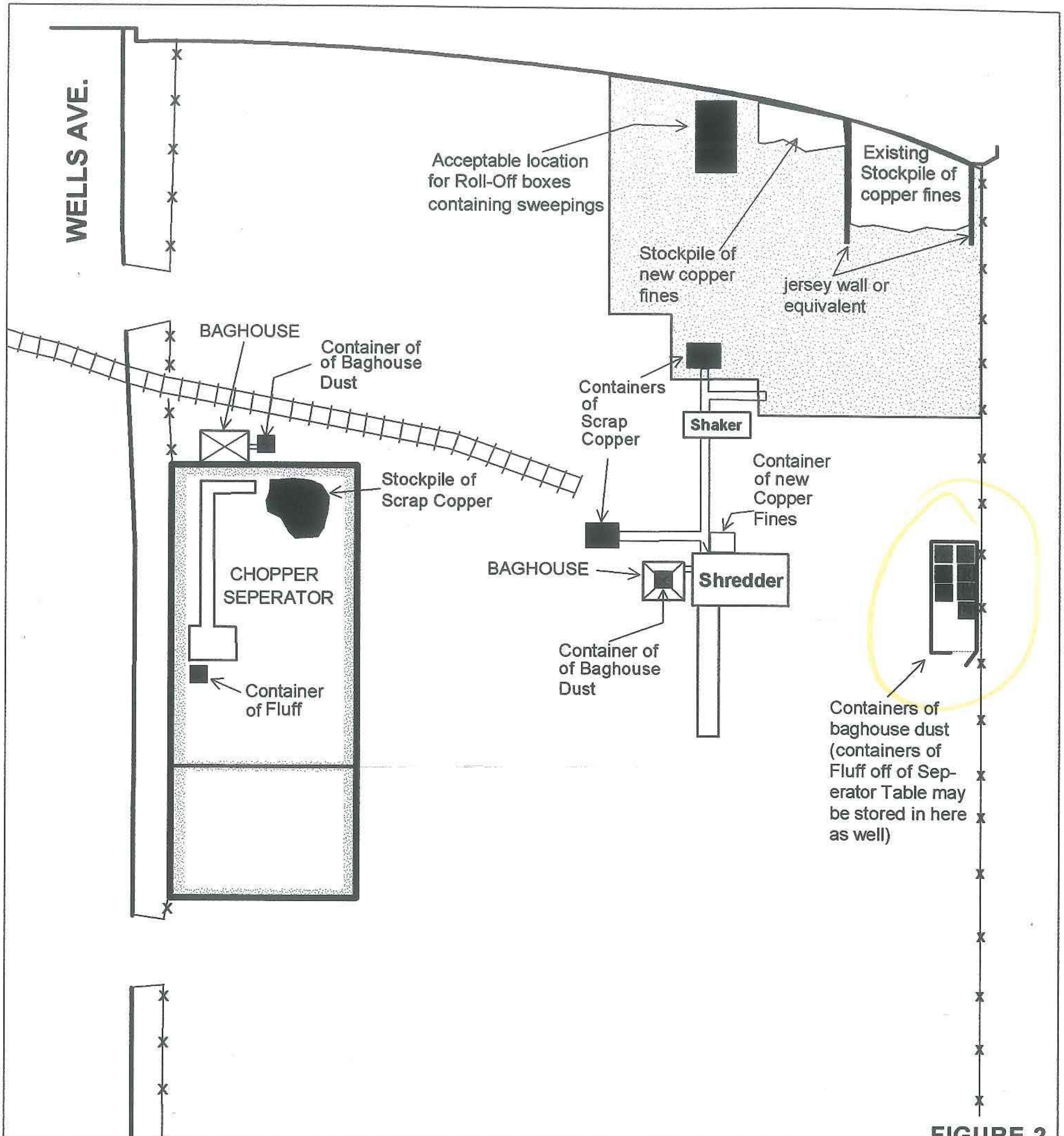


FIGURE 2

International Engineers, Inc.

SITE PLAN

CHICAGO INTERNATIONAL EXPORTING
4020 S. WENTWORTH AVE.
CHICAGO, ILLINOIS

6-14-95 | Drawing Not To Scale

II. MATERIAL HANDLING PROCEDURES

In response to the environmental cleanup performed by the U.S. EPA in 1994-1995, the following "housekeeping" procedures were developed to prevent re-contamination of the site and to ensure compliance with EPA's waste management regulations.

In addition, a number of OSHA standards will also apply due to the presence of PCBs and lead in many of the onsite materials. At a minimum, OSHA's Personal Protective Equipment Standard (29 CFR 1910.132) will apply to all employees exposed to these materials and will include such requirements as the use of impermeable gloves whenever materials are handled and mandatory cleansing of hands before each break and at the end of each day. Other OSHA standards may apply depending on the employee's activity and particular material being handled, as further discussed below.

A. Incoming Materials

1. Prior to acceptance of each load of material, the load shall be visually inspected for the presence of PCB-containing articles or an excessive quantity of dirt and fluff. If PCB-containing articles or an excessive quantity of dirt and fluff are observed, the load shall not be accepted. All acceptable loads shall be unloaded and stockpiled on pavement only.

B. Materials Coming Off Shredder Line

1. Baghouse Dust: Baghouse dust shall be transferred to a Gaylord box through a fully enclosed chute and at a slow enough rate that will prevent dust dispersion into the air. If feasible, a fully enclosed screw/auger transfer mechanism should be installed to facilitate the transfer in a more controlled manner. During wet weather conditions, polyethylene shall be placed over the Gaylord boxes

while they are outside.

Due to the potential to inhale dust containing lead and PCBs, OSHA's respiratory protection and lead standards (29 CFR 1910.134 and 29 CFR 1910.1025) may apply. Appendix B contains more information on the potential for over-exposure to the materials.

The filled Gaylord boxes shall be weighed, labeled (see Section VII.A) and stored on a pallet in a fully enclosed and secured steel freight container until shipped offsite for disposal. Figure 2 shows the location of the freight container.

2. <u>Copper Fines</u>: To prevent dust dispersion and runoff from the copper fines, a container providing full capture of the copper fines shall be placed under the area where copper fines fall off the shredding line. Containerized copper fines shall then be transferred to the Area shown on Figure 2, where they may be stockpiled or retained in containers. Ongoing sampling shall be conducted over a quarterly basis for a year.

To prevent offsite spillover of the stockpiled copper fines, the area used for storage of the copper fines may be bounded by the railroad retaining wall on the north and two additional walls extending directly out from the railroad retaining wall. The two additional walls should consist of jersey-wall barriers placed end-to-end or an equivalent type construction.

Stockpiled or containerized material shall not extend beyond the limits of the bounded area. Each evening, the stockpiled or containerized material shall be covered with a durable and impermeable tarp. Or, as a permanent alternative, a 3-sided shelter with roof may be built over the area, such as those used for salt bins for the storage of road salt (pole and corrugated metal construction.)

3. Scrap Copper: All scrap copper shall at all times be conveyored directly into containers. If left outside, containers with the scrap copper shall be covered each evening with a tarp to prevent rainwater/snowmelt runoff from them. If a larger volume must be accumulated in a stockpile, it must be covered each evening with a tarp or placed into a sheltered area where rainwater/snowmelt will not runoff from the stockpile and wind will not disperse dust and particulates.

4. Spillover: Shredded materials that fall off of conveyor belt or the chute under the shredder shall be cleaned up each day and re-ran through the shredder or placed with the scrap copper, scrap steel or copper fines as appropriate. Cleanup shall include all dust, dirt and fluff that accumulates on the pavement around the shredder.

C. Chopper/Separator Line Materials

1. Baghouse Dust: Baghouse dust shall be transferred to a Gaylord box through a fully enclosed chute and at a slow enough rate that will prevent dust dispersion into the air. If feasible, a fully enclosed screw/auger transfer mechanism may be installed to facilitate the transfer in a more controlled manner. During wet weather conditions, polyethylene shall be placed around the Gaylord boxes while they are outside.

Due to the potential to inhale dust containing lead and PCBs, OSHA's respiratory protection and lead standards (29 CFR 1910.134 and 29 CFR 1910.1025) may apply. Appendix B contains more information on the potential for over-exposure to the materials.

The filled Gaylord boxes shall be weighed, labeled (see Section VII.A) and stored on a pallet in a fully enclosed steel freight container until shipped offsite for disposal. Figure 2 shows the location of the freight container.

2. Spillover: Materials that drop out of the conveyor system and onto the floor or equipment covers shall be collected at least once per week and returned to the scrap copper/aluminum stockpile to be re-run through the chopping/separating line. Cleanup shall include all dust, dirt and fluff on the floor and machinery.

3. Non-Metallic Fluff Off of Separating Table: This material shall be directly discharged into sturdy containers in a manner that will not disperse dust to the ambient air. The container into which the fluff is discharged must be transferred to a designated storage area within three days after more than 55 gallons of waste has accumulated in the container. The container must be labeled with the words HAZARDOUS WASTE and the date when more than 55 gallons of waste began accumulating and must be closed at all times except when adding or removing fluff. A PCBs label (see Appendix A) must also be placed on the container.

The designated storage area may be the same freight container used for the containers of baghouse dust or it may be another container located elsewhere onsite (either bulk or another steel freight container). In either case, the storage area must be labeled with the words HAZARDOUS WASTE, must have a PCBs label (see Appendix A) and shall be marked with the date upon which a container of air table fluff is first placed into the storage area after each time the storage area is emptied of containers of air table fluff. The storage area must be closed at all times except when adding or removing fluff.

III. MAINTENANCE PROCEDURES

In response to the environmental cleanup performed by the U.S. EPA in 1994-1995, the following "housekeeping" procedures were developed to prevent re-contamination of the site and to ensure compliance with EPA's waste management regulations.

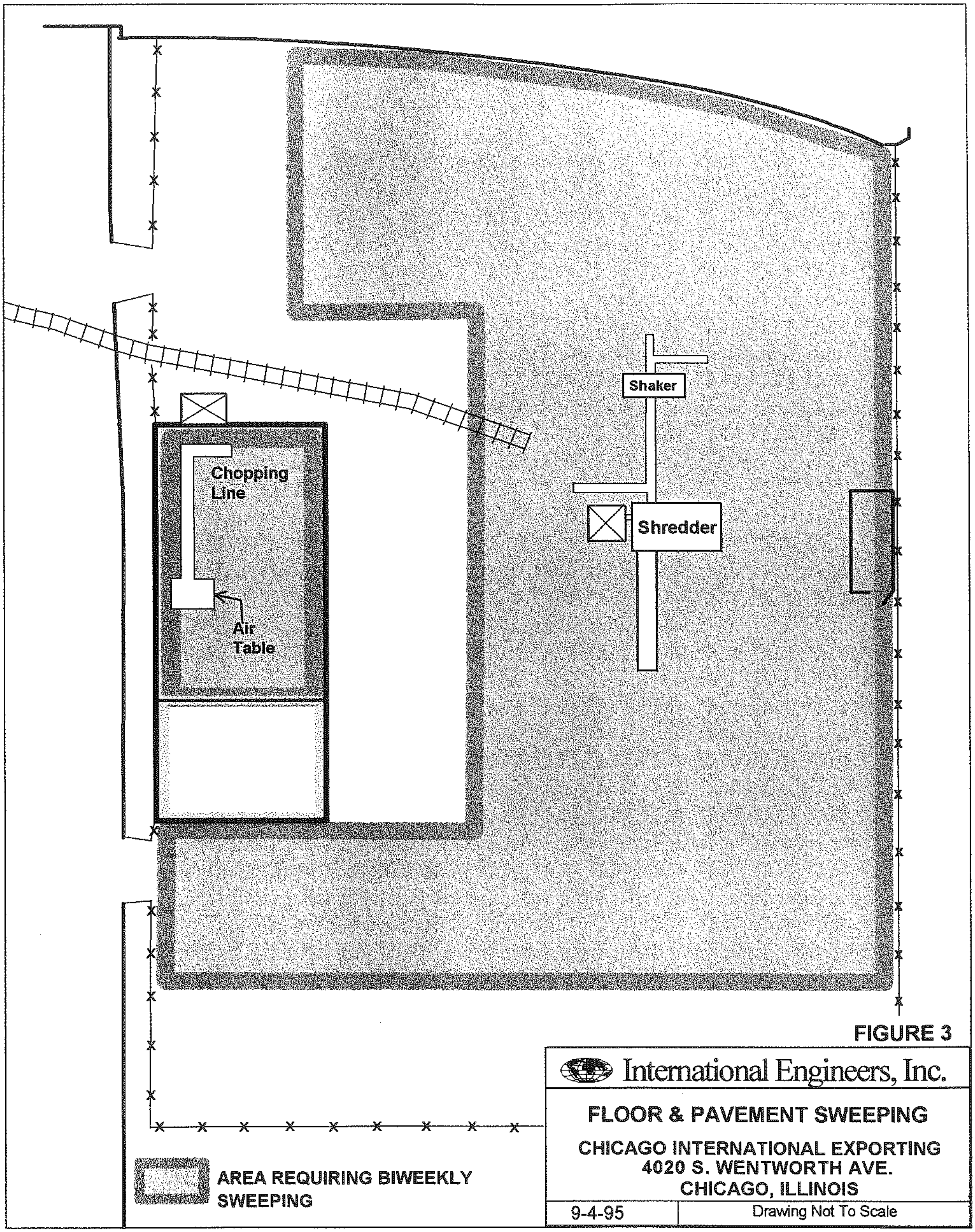
A. Baghouse Maintenance and Inspection

Both baghouses shall be maintained in accordance with the manufacturers recommendations. For any work inside the baghouse, including filter repair or replacement, appropriate personal protective equipment and a respirator shall be worn (OSHA Standards 29 CFR Parts 1910.132, 1910.134 and 29 CFR 1910.1025 will apply). In addition, the inside area of the baghouse shall be considered a confined space (OSHA Standards 29 CFR Part 1910.146 will apply) and shall be assumed to have a hazardous atmosphere until demonstrated otherwise by showing that the atmosphere is not oxygen deficient each time the baghouse is entered.

B. Grounds Maintenance and Inspection:

1. Floor and Pavement Sweeping: All dust, dirt and debris on paved and floor surfaces, not including any materials that can be re-run through the lines, must be swept and picked-up on a bi-weekly basis using the vacuum sweeper and a stiff broom as appropriate. The collected dust, dirt and debris must then be temporarily stored in a roll-off box (or an equivalent container with a cover) until proper disposal. The areas requiring weekly sweeping and pickup are approximately shown on Figure 3.

Is this RCRA HZ.


Shaker
Shredder
Chopping Line
Air Table
AREA REQUIRING BIWEEKLY SWEEPING
FIGURE 3
International Engineers, Inc.
FLOOR & PAVEMENT SWEEPING
CHICAGO INTERNATIONAL EXPORTING
4020 S. WENTWORTH AVE.
CHICAGO, ILLINOIS
9-4-95
Drawing Not To Scale

If the vacuum or broom sweeping or transferring to the roll-off box creates dusty conditions, affected personnel shall wear appropriate personal protective equipment (OSHA Standards 29 CFR 1910.132, 1910.134 and 1910.1025 may apply).

Dust, dirt and debris from the sweeping shall be transferred to a roll-off box and covered with a tarp. After each roll-off box is filled, the material must be tested and then possibly disposed as further described in Section VII.

2. Sump pits: Sump pits used to capture runoff from paved areas shall be kept free and clear of obstructions. Accumulated sediment in the sump pits shall be removed as necessary to maintain proper function of the sump pit. The removed sediment shall be stored in the same container as the floor and pavement sweepings since it would consist of dust, dirt and debris from the paved surfaces.

3. Inspection of Storage Areas: All containers of baghouse dust and fluff off of the separator table shall be checked for leaks and deterioration at least once every 30 days. The roll-off boxes containing sweepings shall be checked for leaks every 30 days as well.

C. Equipment Maintenance and Repair

1. Equipment maintenance and repair that results in dispersion of dust into the air around one or more workers or results in excessive transfer of dirt to the worker's clothing or skin shall be performed with the appropriate personal protective equipment, clothing and

respirator (OSHA Standard 29 CFR Parts 1910.132, 1910.134 and 29 CFR 1910.1025 may apply). In addition, the inside of the shredder shall be considered a confined space (OSHA Standard 29 CFR 1910.146 will apply) and shall be assumed to have a hazardous atmosphere until demonstrated otherwise by showing the atmosphere is not oxygen deficient.

IV. SPILL AND RELEASE PROCEDURES

A. GENERAL

One purpose of this plan is to assure prompt response to the accidental release of a hazardous material.

The elements of a prompt response are as follows:

1) REPORT the spill event, if required, to city, state and federal agencies.
2) ACT promptly to CONTAIN the spill.
3) ACT promptly to CLEAN UP the spill.
4) COOPERATE with regulatory authorities in any way they suggest to prevent or control a spill.

B. RESPONSIBILITIES

The responsibility for spill control shall be vested in the Site Manager. He shall carry out all aspects of the spill prevention and control program, including personnel training, maintenance of spill equipment and supplies, development of procedures, inspections, and on site direction of operations. The Site Manager is Steven Cohen.

C. COMMUNICATIONS

The effectiveness of any action plan is dependent upon employee awareness of the communication system developed for this purpose.

SPILL DISCOVERED BY EMPLOYEE
(including contractor personnel, deliverers, etc.)

⇨ Employee

1. Determine the source of spill and stop it, if not already done and if possible.
2. Notify Site Manager (Steve Cohen). If during non-working hours, site manager shall be notified at home:

HOME PHONE NUMBER FOR STEVE COHEN

[redacted]

3. Evaluate the magnitude of the spill and pollution potential. Call the Chicago Fire Department if a fire is involved:

CHICAGO FIRE DEPARTMENT

911

4. Direct the containment and clean up of the spill.
5. Call in additional assistance as required.

⇨ Site Manager

1. Notify city, federal and state authorities if required (see Section V). It must be reported immediately after it is discovered that a reportable quantity has spilled.

D. SPILL SUPPLIES

Emergency spill kits are located in the following areas:

- Ground level of main building

Spill kits shall contain the following:

- Bag of loose absorbent
- Dust suppressant/sweeping compound
- Portable vacuum
- Appropriate personal protective equipment and clothing
- Appropriate respiratory equipment

E. RESPONSE PROCEDURES

1. Minor Spill of Baghouse Dust: Isolate area, don appropriate personal protective equipment, clothing and respirator, apply dust suppressant/sweeping compound if necessary, manually sweep or use pavement sweeper or use portable vacuum, transfer into Gaylord box and store with other Gaylord boxes of baghouse dust.

2. Oil Spill: Contain flow of oil with absorbent, if necessary, spread loose absorbent on residue and scoop or sweep up with vacuum sweeper or stiff broom, transfer into steel 55-gallon drum.

3. Major Release of Baghouse Dust: Immediately shutdown process, notify National Response Center (see Section V) if dust has gone offsite, evacuate personnel from area(s) containing released material, apply dust suppressant/sweeping compound, manually sweep or use pavement sweeper or use portable vacuum, transfer into Gaylord box and store with other Gaylord boxes of baghouse dust.

4. Baghouse Fire: Immediately shutdown process and electrical supply to baghouse, call Chicago Fire Department at 911, evacuate personnel from vicinity of baghouse.

5. Spill of Non-Metallic Fluff Off of Separator Table: Isolate area, don appropriate personal protective equipment, clothing and respirator, manually sweep and pickup or use vacuum sweeper, transfer into an undamaged steel 55-gallon drum and store with other containers of non-metallic fluff off of separator table.

V. REPORTING RELEASES

The following agencies should be notified in the event of a release that exceeds the Reportable Quantities for PCB's or lead. Notification should be made by the Site Manager or a Corporate Officer as soon as possible after discovery of a release (within 1 hour if possible) or no later than 4 hours after discovery of the release.

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL RESPONSE CENTER
1-800-424-8802

VI. TRAINING PROGRAM

To ensure that this Operating and Contingency Plan is implemented properly, training/safety meetings shall be held on a routine basis as follows.

A. **New Employee Orientation**: Whenever a new employee is hired, the new employee shall be allowed 1 hour to familiarize himself with this plan. In addition, the Site Manager (ie., Steven Cohen) shall guide the new employee around the yard and explain the various operating and contingency requirements, including:

- Locations of waste and materials storage areas and proper handling and storage procedures relevant to new employee's responsibilities.
- Location of spill kit and proper procedure to respond to spills or releases of waste materials.

B. **Hazardous Materials Management**: The Site Manager shall provide on the job training to each employee involved in the management of the following materials:

- Baghouse dust
- Non-metallic fluff off of separated table

This training shall cover procedures for the following:

- Using, inspecting, repairing and replacing facility emergency and monitoring equipment;
- Shutdown of operations;
- Communications or alarm systems
- Response to fires or explosions

The following records shall be maintained at the facility:

- Job title and written description of job for each position at the facility related to management of the above materials and the name of the employee filling each job;

- Records that document that the relevant training and/or job experience has been provided to appropriate personnel

VII. STORAGE AND DISPOSAL OF WASTE

Three types of wastestreams are generated at this site:

- Wastes containing more than 50 mg/kg of PCBs (PCB wastes);
- Wastes containing more than 5 mg/l of lead as determined by a TCLP analysis (hazardous wastes); and
- Other process wastes that do not fall into the above categories (special wastes).

PCB wastes are regulated under 40 CFR Part 761. Hazardous wastes are regulated under 40 CFR Part 262 (State of Illinois regulations are 35 IAC Part 722). Special wastes are regulated under State of Illinois 35 IAC Part 808. The various waste types are shown in Table 1.

A. PCB WASTES:

Each container of PCB Waste and any larger containers or shelters in which individual containers are stored, such as the steel freight container currently used for the containers of baghouse dust shall have a PCB label conforming to the requirements shown in Appendix A. This label shall be placed so that it can be easily read by any person inspecting or servicing the marked items or areas. Each individual container shall also be marked with a unique number or identifier, its weight and the date upon which it was filled. The storage area shall be managed so that the containers can be located by the date they entered storage and shall be secured at all times (except when adding or removing material) by closing the doors.

TABLE 1

SUMMARY OF WASTE TYPES

Chicago International Exporting

Is Co assuming that this is RCRA waste

CATEGORY	WASTE MATERIAL	PCB Waste	Hazardous Waste	Special Waste	Ongoing Testing Required	Disposal Within 90-180-270 Days	Disposal Within 1 Year
1	Baghouse Dust	X					X
2	Fluff Off of Air Table	X	X		X?	X	
3	Floor and pavement sweepings IF sample exceeds 50 ppm of PCBs and 5 mg/l of TCLP lead.	X	X		X	X	
4	Floor and pavement sweepings IF sample exceeds 50 ppm of PCBs, but does not exceed 5 mg/l of TCLP lead.	X	X?		X		X
5	Floor and pavement sweepings IF sample does not exceed 50 ppm of PCBs or 5 mg/l of TCLP lead.			X	X		X
6	Floor and pavement sweepings IF sample does not exceed 50 ppm of PCBs, but still exceeds 5 mg/l of TCLP lead.		X		X	X	

Disposal of PCB wastes shall be within one year after it was generated. Currently, disposal solid of PCB wastes is limited to either an incinerator or chemical waste landfill approved by the U.S. EPA pursuant to 40 CFR Part 761.70 and 40 CFR Part 761.75. However, currently proposed regulations may allow other disposal options in the future.

A manifest (EPA Form 8700-22) shall accompany each shipment of PCB wastes and one copy shall be retained at the time of shipment. Another copy of the manifest, which has been signed by the receiving facility, is supposed to be returned within 35 days and shall be saved as well. If the other copy signed by the receiving facility has not been returned within 35 days, the status of the shipment shall be determined. If the copy has not been received within 45 days, an Exception Report shall be filed with the U.S. EPA Regional Administrator. A Certificate of Disposal will be issued by the disposal facility within 30 days and shall be saved as well.

A written annual document log of the disposition of PCB's shall be prepared by July 1 for the previous calendar year (January-December.) All records shall be retained at the site for at least 3 years.

A1. **Baghouse Dust:** Baghouse dust is considered a PCB waste only. Baghouse dust may be directly discharged into the polyethylene lined fiber boxes (i.e., the Gaylord boxes). However, the boxes shall be protected from wet weather by placing a polyethylene bag over it while it is exposed to wet weather conditions. The PCB label shall be affixed on the box when it is first placed under the baghouse.

A2. **Separator (Air) Table Fluff:** Air table fluff is considered a PCB waste and a hazardous waste for TCLP lead. Air table fluff may be directly discharged to a Gaylord box. However, the boxes shall be protected from wet weather.

A3. <u>Floor and Pavement Sweepings</u>: Floor and pavement sweepings may be considered a PCB Waste depending on sample and test results obtained by sampling each container (i.e., roll-off box) of sweepings as it is generated.

When a container of sweepings is filled, it shall be sampled and tested for PCBs (and TCLP lead as explained in Section VII.B.2.). Sample and test procedures are described in Section VIII. If the samples exceed 50 ppm of PCBs, it shall be considered a PCB waste. Representative sampling, and therefore, a PCB waste determination, cannot be conducted until a sufficient volume of material has accumulated (on the order of several cubic yards of about the volume of a roll-off box). Upon receipt of the test results that exceed 50 ppm of PCBs, the container shall be labeled appropriately and dated with the date that the test results are received.

All pavement and floor sweepings shall be stored in roll-off boxes (or an equivalent) and shall be covered at all times, except when adding or removing material.

B. HAZARDOUS WASTES

The container in which hazardous wastes are stored must be sturdy and weatherproof if left outside. The container into which the hazardous waste is directly discharged must be transferred to a designated storage area within three days after more than 55 gallons of waste (i.e., a drum) has accumulated in the container. The container must be labeled with the words HAZARDOUS WASTE and the date when more than 55 gallons of waste began accumulating and must be closed at all times except when adding or removing fluff. A PCBs label (see Appendix A) must also be placed on the container if it is also a PCB waste.

The designated storage area may be a larger container, such as the freight container used for the boxes of baghouse dust or it may be a bulk container located elsewhere onsite or it may be a sheltered area or room. In any case, the designated storage area must be labeled with HAZARDOUS WASTE labels, (see Appendix A) and shall be marked with the date upon which accumulation in the storage area began. The storage area must be closed at all times except when adding or removing materials.

The containers shall be arranged in the storage area so that the labels are visible upon inspection of the area. Due to the type of hazards posed by this waste, an alarm system, telephone/2-way radio, portable fire extinguisher and water supply are not required. Similarly, arrangements with police, fire departments, hospitals and emergency response coordinators are not required. Contingency and emergency procedures for this material are provided in sections IV.E.5. and V.

If more than 2200 lbs of hazardous waste accumulates in a month, the accumulated waste must be disposed of within 90 days. Prior to disposing, each container must be marked with appropriate Department of Transportation labels, marks and placards specified under 49 CFR Part 172 (typically provided by the transporter).

If less than 2200 lbs of hazardous waste accumulate in a month, the accumulated waste must be disposed of within 180 days so long as no more than 13,200 lbs of waste is accumulated. If the waste must be transported over a distance of 200 miles or more, the waste may be accumulated for 270 days so long as no more than 13,200 lbs accumulates onsite.

With each shipment of waste, an EPA manifest (EPA Form 8700-22) shall be completed by a designated representative. A copy of the manifest shall be retained at the time of shipment. Another copy of the manifest, which has been signed by the receiving treatment/disposal facility, will be returned and shall be saved as well. Both copies of the manifest shall be retained for 3 years. If the receiving treatment/disposal facility does not return the manifest within 35 days, the transporter and treatment/disposal facility shall be contacted to determine the status of the waste. If a manifest has not been received within 45 days, an Exception Report shall be filed with the U.S. EPA Regional Administrator. A Biennial Report shall be filed by March 1 of each even numbered year.

In addition, since the hazardous wastes for TCLP lead are restricted wastes under 40 CFR Part 268, a written notice (ie., a form typically provided by the disposal facility) must by provided to the treatment/disposal facility with each shipment of waste indicating that the waste does not meet the applicable treatment standard (the disposal facility will have to stabilize the materials prior to placing it into the landfill). These records must be retained for 5 years.

As a restricted waste, each shipment must be treated to reduce the TCLP lead levels to below 5 mg/l before it can be land disposed. Land disposal must be in a disposal facility permitted to accept hazardous waste pursuant to 40 CFR Part 270 or the equivalent State program.

B1. Separator (Air) Table Fluff: Air table fluff is considered a hazardous waste for TCLP lead and a PCB waste. Air table fluff may be directly discharged to a Gaylord box. However, the boxes shall be protected from wet weather.

B2. **Floor and Pavement Sweepings**: Floor and pavement sweepings may also be considered a hazardous waste based on an exceedance of the TCLP lead standard, which is 5 mg/l. When a container of potentially hazardous waste sweepings is filled, it shall be sampled and tested for TCLP lead (and PCBs as further explained in Section VII A.2.). Sample and test procedures are described in Section VIII. If the samples exceed 5 mg/l of TCLP lead, it shall be considered a hazardous waste. If the samples also exceed 50 ppm of PCBs, it shall also be considered a PCB waste as further described in the previous section (Section VII.A.3.).

Due to the variability of the sweepings, a representative sample cannot be collected until a sufficient volume of material has accumulated, which will be on the order of several cubic yards or about the volume of a roll-off box. Therefore, a hazardous waste determination cannot be made until a representative sample of the sweepings can be collected. Once a hazardous waste determination is made, the container shall be labeled appropriately and the date of accumulation shall be considered the date on which test results from the lab are received.

All pavement and floor sweepings shall be stored in roll-off boxes (or an equivalent) and shall be covered at all times, except when adding or removing material.

C. Special Wastes

Any industrial process waste or pollution control waste that is not considered a PCB or hazardous waste shall be considered a non-hazardous special waste. Such waste may include the floor and pavement sweepings if sample test results do not exceed 50 ppm of PCBs or 5 mg/l of TCLP lead.

Disposal of special wastes shall be at a landfill or other disposal facility permitted by the Illinois EPA to accept special non-hazardous waste pursuant to 35 IAC Part 807. Transportation of the waste shall be by a special waste hauler licensed pursuant to 35 IAC Part 809.

A manifest meeting the requirements of 35 IAC Part 809.501 (provided by the hauler) shall accompany each shipment of waste. The top copy shall be saved as well as the bottom copy that is returned by the final receiving facility at the end of the month. All records shall be retained for 3 years.

For wastes containing detectable levels of PCBs (though less than 50 ppm of PCBs), a copy of the manifest shall be submitted to the IEPA in Springfield. Copies of manifests of special waste not containing PCBs do not need to be submitted to the Agency.

VIII. WASTE SAMPLING PROCEDURES

Based on current regulations and site operations, the following materials have already been adequately sampled and tested:

- baghouse dust
- air table fluff
- scrap copper
- scrap steel

The results of the testing will be provided in a separate report. If any of the processes or input materials change, the processed and waste materials shall be resampled and tested accordingly by the same procedures described in the separate report.

Copper fines will require one year of quarterly sampling. Based on the first 3 rounds of sampling already completed, statistical analyses indicate that the copper fines are not a PCB waste. However, 1 of the 3 samples already collected exceeded 50 ppm of PCBs so ongoing sampling over the course of a year will be required to determine with more confidence as to whether the copper fines exceed 50 ppm of PCB over the long term.

Until ongoing statistical testing demonstrates that the copper fines exceed 50 ppm of PCB, the copper fines can be stockpiled on pavement. One composite sample shall be collected on a quarterly basis from the stockpile of copper fines using the sampling methodology illustrated on page 16 of the USEPA Sampling Guidance for Scrap Metal Shredders: Field Manual (August 1993), which is contained in Appendix D. An 8 oz scoop of material can be substituted in the described methodology for the one gallon bucket.

The composite sample shall be analyzed for PCBs using EPA Method 8080.

Upon receipt of each test result, the "Hypothesis Testing for Monitoring Programs" shall be applied to all test results obtained to date. The Hypothesis Testing for Monitoring Programs is fully described on page A-4 of the USEPA Sampling Guidance for Scrap Metal Shredders: Field Manual (Appendix D).

Floor and pavement sweepings will also require ongoing sampling and testing for at least 3 rounds. Due to the highly variable and large volume of these waste types, a fairly large volume will have to be accumulated before a representative sample can be obtained. For reasons of practicality, the volume of a roll-off box (8-12 cubic yards) shall be considered sufficient volume. The roll-off box shall be sampled as follows:

- At each of 3 equally spaced points along the centerline of the roll-off box, collect an approximately 1-quart sized sample from the surface, at mid-depth and from the bottom of the box. Combine all 9 samples into a properly cleaned container (e.g., a plastic bucket cleaned in a solution of trisodium phosphate and water followed by a tap water rinse).

- Spread the combined samples onto a clean surface (e.g., new polyethylene sheeting) and thoroughly mix the samples by hand (use clean impermeable gloves).

- Fill a laboratory-decontaminated 8 or 16 oz. jar with the material and label appropriately.

Each sample shall be tested as follows:

- PCBs by EPA Method 8080
- TCLP Lead by EPA Method 6010

Turns out to be only one sample

must have 3 samples

Composite of each surface, mid and bottom of the 3 equally spaced points

Upon receipt of each test result, the Hypothesis Testing for Monitoring Programs shall be applied to all test results obtained to date (see page A-4, Appendix D).

Records of all test results shall be maintained at the site for at least 3 years.

APPENDIX A

LARGE PCB LABEL

Label shall be as shown below. Letters and striping shall be on a yellow or white background and shall be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB container. The size of the label shall be at least 6 inches on each side.

HAZARDOUS WASTE LABEL

Hazardous Waste Containers shall be marked with the following information. The information must be displayed on a background of sharply contrasting color, must be unobscured by labels or attachments and must be located away from any other marking, such as advertising, that could substantially reduce its effectiveness. Labels containing this information are commercially available.

When offered for transportation to a disposal facility, each container shall also be marked and labeled in accordance with Department of Transportation regulations (49 CFR Part 172). Although most transporters licensed to haul this material provide the proper labels, it is still the responsibility of Chicago International Exporting to ensure that the waste containers have all required labels and markings.

HAZARDOUS WASTE

Federal law prohibits improper disposal.
If found, contact the nearest police or public safety authority
or the U. S. Environmental Protection Agency.

Chicago International Exporting
4020 S. Wentworth Avenue
Chicago, Illinois

Manifest Document No. __________

APPENDIX B

Potential Inhalation Exposure to PCBs and Lead

Potential Inhalation Exposure to PCBs and Lead

Worst case exposure is best represented by assuming *very high* airborne concentrations of baghouse dust. The baghouse dust contains the highest concentrations of PCBs and lead of all the materials processed onsite. Any dust generated by the shredder or chopper processes, even if not captured by the baghouse, is presumed to have comparable concentrations of PCBs and lead as was measured in the baghouse dust itself. Material Safety Data Sheets (MSDSs) for PCBs and lead are provided behind these calculations.

<u>PCBs</u>

Highest concentration of PCBs detected in the baghouse dust during summer 1995 was 283 mg/kg. To evaluate worst case exposure, we will assume a concentration of 1000 mg/kg, which is 3-4 times the highest detected concentration during the sampling of summer 1995.

1000 mg/kg (milligrams of PCBs per kilogram of dust)

Highest concentration of dust in air representing *extremely* dusty conditions. It should be noted that the following level of dust in the air is not likely to be encountered at this site. It should also be noted that OSHA's standard for nuisance dust is 15 mg/m^3:

50 mg/m^3 = 0.00005 kg of dust per cubic meter of air

(1000 mg/kg) x (0.00005 kg/m^3) = 0.05 mg of PCBs/m^3 or air

This result is 10 times less than OSHA's Permissible Exposure Limit of 0.5 mg/m^3.

Lead

Highest concentration of lead detected in the baghouse dust was 1500 ug/g. To evaluate worst case exposure, we will assume a concentration of 5000 ug/g of lead, which is 3-4 times the detected concentrations.

5000 ug/g (micrograms of lead per *** gram of dust)

Highest concentration of dust in air representing extremely dusty conditions. It should be noted that the following level of dust in the air is not likely to be encountered at this site. It should also be noted that OSHA's standard for nuisance dust is 15 mg/m^3:

50 mg/m^3 = 0.05 g of dust per cubic meter of air

(5000 ug/g) x (0.05 g/m^3) = 250 ug of lead/m^3 of air

This result indicates that, under unusually dust conditions, it may be possible to exceed OSHA's Permissible Exposure Limit of 50 ug/m^3 of lead dust in air.

APPENDIX C

Material Safety Data Sheets:

PCBs

Lead

APPENDIX D

Sampling Guidance for Scrap Metal Shredders: Field Manual

United States
Environmental Protection
Agency

Office of Prevention, Pesticides
and Toxic Substances
Washington, DC 20460

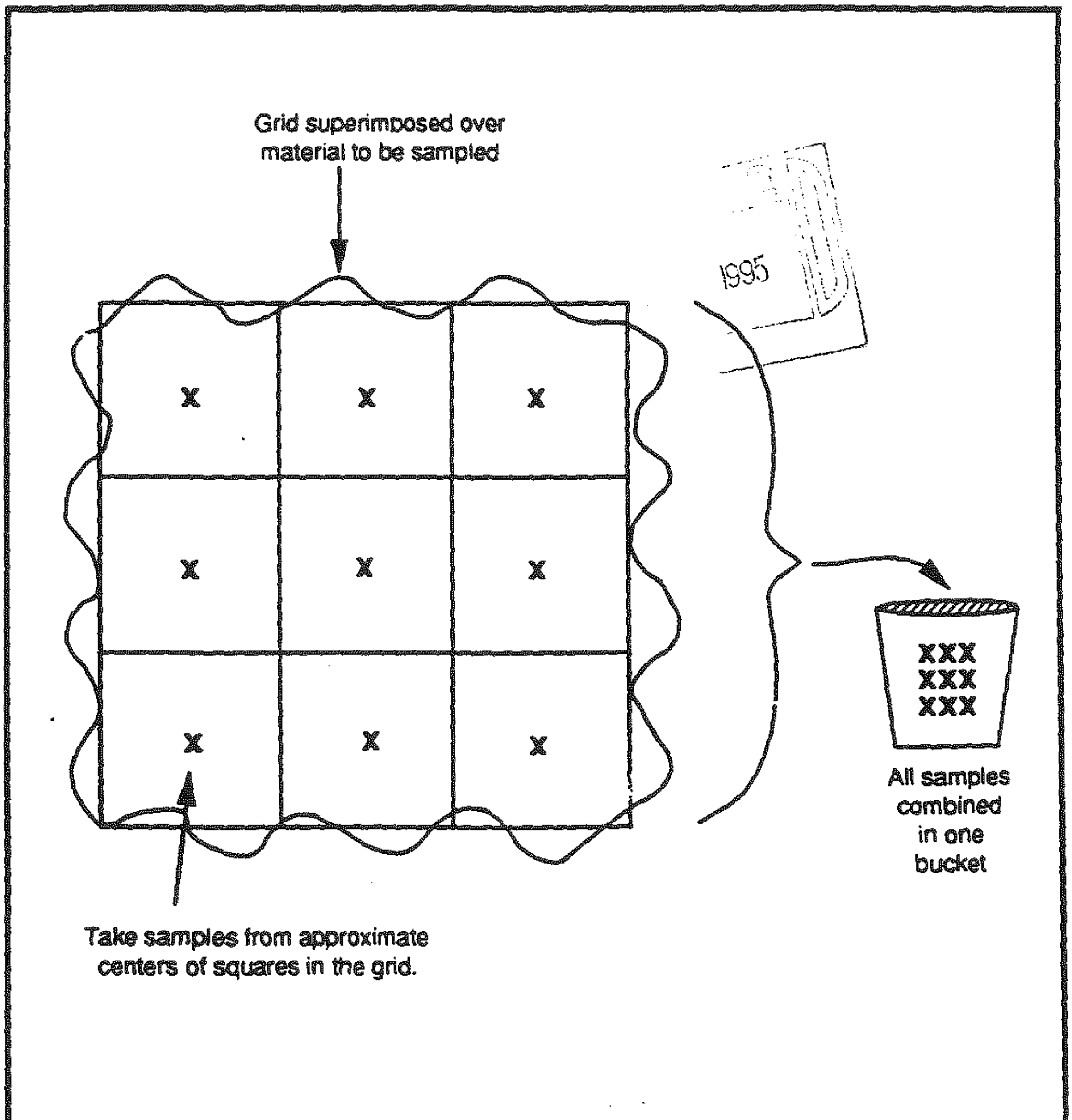
EPA 747-R-93-009
August 1993

Office of Prevention, Pesticides, and Toxic Substances

EPA

SAMPLING GUIDANCE FOR SCRAP METAL SHREDDERS

Field Manual



SAMPLING GUIDANCE FOR SCRAP METAL SHREDDERS

Field Manual

August 1993

United States Environmental Protection Agency
Office of Prevention, Pesticides
and Toxic Substances
Washington, DC 20460

Authors and Contributors

Westat Project Staff:

James Bethel
Ralph DiGaetano
Mary Peppler

EPA Project Staff:

Edith Sterrett, Project Officer
Susan Dillman, Task Manager

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1. INTRODUCTION

Purpose of this Document. The purpose of this document is to provide basic instructions for collecting and statistically analyzing samples of materials that are produced as a result of shredding automobiles, refrigerators, washing machines, and other metal objects. Shredders constitute an important component of this country's environmental management program, annually recycling 6-9 million cars, 19 million appliances, and 10 million tons of scrap metal. Unfortunately, the by-products of these recycling operations may, in some cases, contain significant concentrations of polychlorinated biphenyl's (PCBs) or other toxic substances, notably lead and cadmium. As a result, communities, environmental agencies, and shredder operators have expressed concern over the possibility of contamination in waste products generated at shredder sites and have indicated a need for guidance in assessing the presence of toxic substances in these materials.

Previous Studies. Several States have done exploratory studies of shredder sites. Analysis of approximately 200 samples of waste materials collected at shredder sites have revealed concentrations of PCBs ranging from 0 to 1,242 parts per million (ppm).

Based on concerns raised by these studies, the U.S. Environmental Protection Agency (USEPA) has gathered samples of various waste materials at seven shredder sites distributed across the United States.[1] In this study, analysis of samples of PCBs revealed concentrations ranging as high as 870 ppm. The same study found concentrations of lead and cadmium ranging as high as 43,000 ppm and 200 ppm, respectively. Information from these prior studies, particularly the one done by the USEPA, has been used in developing the sampling methods discussed in this document.

Shredder Output Streams. Shredders are very large machines that convert autos, truck bodies and other light gauge metal objects into fist size or smaller pieces of scrap metal.[2] A typical shredder operation is depicted schematically in Figure 1. The actual "shredding"

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[1] *PCB, Lead, and Cadmium Levels in Shredder Waste Materials: A Pilot Study*. USEPA, Office of Toxic Substances. EPA 560/5-90-008B. 1991.

[2] The technical background for this section is based on material taken from *PCB, Lead, and Cadmium Levels in Shredder Waste Materials: A Pilot Study*, ibid.; on Chapters 1 and 2 of *Analytical Chemistry of PCBs*, by Mitchell D. Erickson, Butterworth Publishers, 1986; and on conversations with shredder operators and environmental consultants specializing in scrap metal recycling.

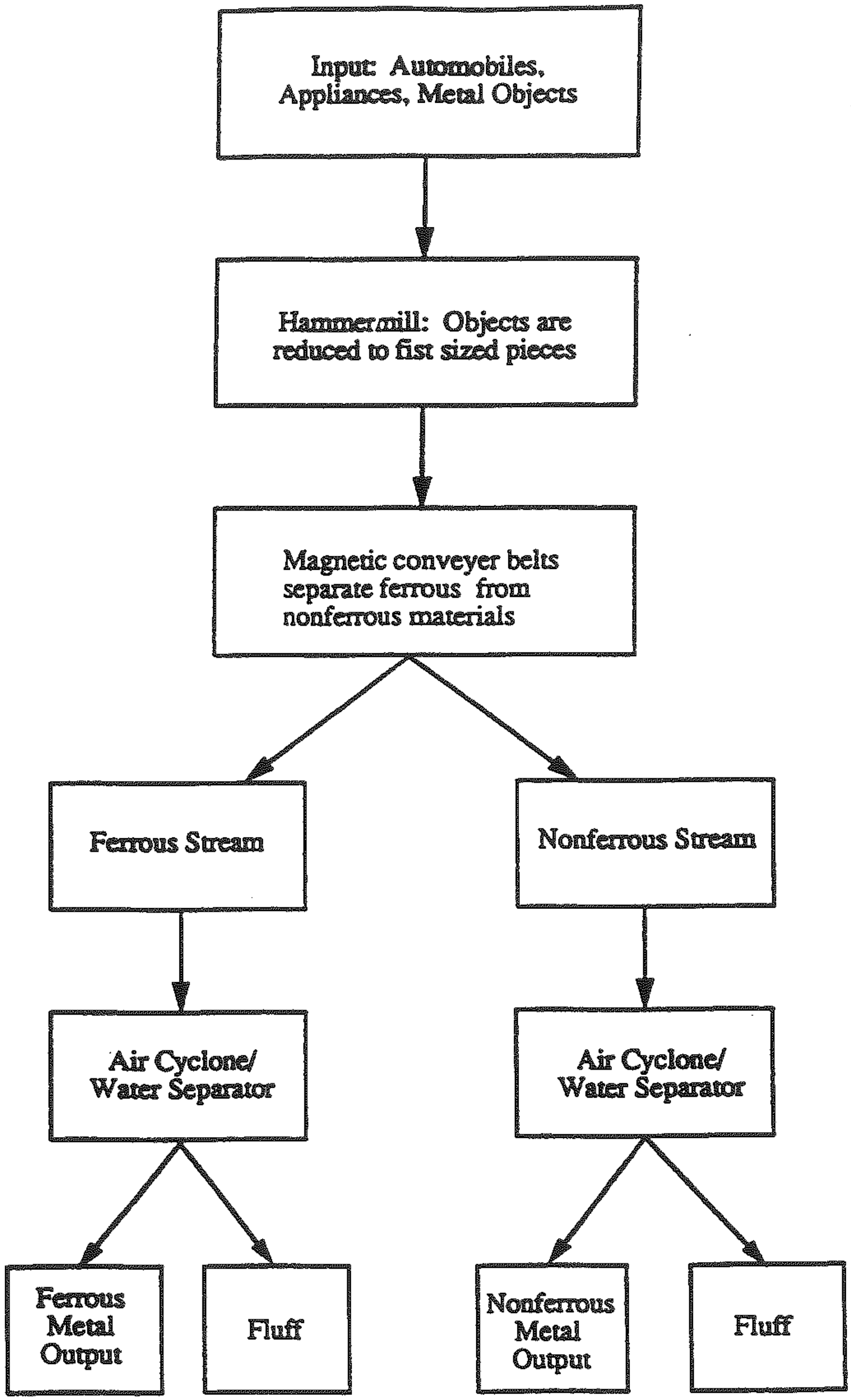

Figure 1. Schematic illustration of shredder process

is accomplished by a large hammer mill, after which the resulting output is sorted into three main output streams:

- Ferrous metals,
- Nonferrous metals, and
- Fluff.

Fluff is extremely heterogeneous. While it consists largely of plastic and foam, it may also contain pieces of metal, rubber, fabric, wire, and other materials. In general, it has a fibrous, "fluffy" appearance, at least when viewed from a distance. The initial separation into ferrous and nonferrous materials is carried out using magnetic devices. After this step, metal and fluff are separated using either air cyclone or water separation processes. In addition, nonferrous metals are often subjected to some hand-sorting as well. Both ferrous and nonferrous metals are recycled, while fluff is typically deposited in landfills.

It should be noted that this is a description of a "typical" shredder, but there are many types of shredders and the instructions in this document may have to be adapted for special circumstances at a given location.

How PCBs Enter Output Streams. PCBs enter output streams when materials containing PCB-bearing fluids are shredded. PCB-bearing fluids have been used in the construction of capacitors, transformers, electric motors, air conditioners, and hydraulic devices. PCBs have also been used as additives in pesticides, paints, sealants, and plastics.

The materials processed at shredder sites may be roughly categorized as follows:

- Motor vehicles, including passenger cars, light trucks, vans and small school buses: In such vehicles, PCBs may be found in paint, hydraulic fluids, oil capacitors, plastic materials, and in oily dust accumulated from roads.

- Appliances, including refrigerators, washers, dryers, dishwashers, freezers, ranges, air-conditioners, microwaves, and hot water heaters: These materials are generally called "white goods." In white goods, PCBs may be found in capacitors and electric motors.

- Other materials, such as scrap metals, or industrial or office equipment: PCBs might be found in oil-filled capacitors, plastics, paints, and adhesives.

When objects containing PCB-bearing fluids are shredded, the fluids are dispersed and may be absorbed by the fluff, or the fluids may coat metal and plastic objects. Similarly, when plastics or painted objects are shredded, PCBs in particulate form may enter the fluff output stream. In any case, the concentration of PCBs in (or on) materials produced at shredder sites may pose an unreasonable risk to health or the environment.

PCBs have been regulated by the Toxic Substances Control Act (TSCA) since 1976. According to these regulations, materials that contain PCBs in a concentration of 50 ppm or more must be disposed of in a chemical waste landfill, boiler or incinerator approved under TSCA. EPA has determined that fluff is regulated under TSCA, 40 C.F.R. Part 761. The U.S. Shredding Industry produces approximately three million tons of fluff a year. If widespread contamination were found and the materials were deposited in TSCA landfills, the demand for these landfills could exceed their capacity due to the volume of fluff.

Where to Look for PCBs and Other Toxic Substances. Very little is known about the volume and distribution of PCBs at shredder sites. It is generally suspected that PCBs are much more likely to enter output streams when processing white goods than motor vehicles because of the higher prevalence of electric motors in the former. Because of this, many operators refuse to process white goods, while others accept them only if the motors have been removed. Those operators that do process white goods typically "mix" them with motor vehicles, usually at a rate of about 10% or less white goods (by weight).

When PCBs are present at a given site, it is generally expected that they would be found in fluff because of its absorbent nature. While metal output may be coated with PCB-bearing fluids, it seems unlikely that the coating would contain enough PCBs to constitute a health hazard. PCBs may be present in the soil at shredder sites, particularly in locations where fluff accumulates or is moved for storage. However, it must be stressed that very little is known about levels of PCBs at shredder sites and the possible contamination of materials produced by shredders.

Even less is known about other toxic substances that may be present at shredder sites. Lead and cadmium may enter output streams from paint and metal plating on component parts in motor vehicles. Unlike PCBs, lead and cadmium are not typically suspended in fluids, but they might adhere to particles of fluff as materials are shredded.

Sampling Objectives. There are several possible objectives in sampling for PCBs. At the time of this writing, no one knows very much about the presence of PCBs at shredder sites. Large concentrations of PCBs have been identified in some samples that have been collected; some of these findings have been questioned, based on data collection procedures and/or analytical methods. Thus, agencies may wish to collect data at shredder sites in order to study the situation in their locality. In such studies, the objective is simply to gather data and make a preliminary assessment of possible contamination, as measured by the overall concentration of PCBs, without any preconceived ideas about whether such contamination exists.

Another objective is to monitor the output of one or more shredder sites. In this situation, the monitoring agency – which may be the shredder operator or an outside agency – develops a program of regular sampling and analysis of materials to assure that shredder output meets specified standards.

In the event that a shredder site or output from a site is established as being contaminated with PCBs – if large piles of stored fluff or the soil around the site are known to contain high concentrations of PCBs, for example – then it may become necessary for the site to undergo some form of clean-up or change in operating procedures. Thus, a third objective of sampling might be to collect data to verify that a site is free of PCBs.

The sampling procedures described in this document are intended to produce representative samples of fluff that will give reasonably accurate estimates of the overall concentration of PCBs in the material being sampled. The sampling methods are suitable for any of the objectives described above. The document primarily addresses analytical methods for exploratory studies; an appendix discusses analytical methods for monitoring and clean-up verification.

Contents of This Document. The document consists of three main parts. In Chapter 2, we will discuss procedures for selecting samples of fluff and other media at shredder sites. Next, in Chapter 3, we will discuss subsampling and other issues in laboratory testing. Finally, in Chapter 4, we will discuss statistical procedures for deriving conclusions after the data have been analyzed at the laboratory. The methods discussed in Chapter 4 are intended for exploratory studies undertaken to assess the extent of PCB contamination, if any, at one or more shredder sites. Analytical methods for regulatory procedures are discussed in an appendix.

This document is intended for users of all backgrounds and no special statistical knowledge is required. The statistical background and technical justification for the material presented here is given in a companion volume.[1]

Cautions about Using This Document. This document consists of directions for collecting and analyzing samples of materials at shredder sites. The sampling plans, estimated sample size requirements, and the accuracy of statistical tests that are discussed in this document are based on data from samples collected at seven different shredder sites located throughout the United States. Although it is not likely, the data that you encounter at your shredder (or the site you are investigating) may differ substantially from the data used to develop the guidelines in this document. If this occurs, the sample sizes shown in tables in this document may yield results that are somewhat more or less precise than you would expect based on the parameters discussed in Section 4 and in the appendix.

[1] *Sampling Guidance for Scrap Metal Shredders: Technical Background.* USEPA, Office of Pollution Prevention and Toxics. EPA/560/5-91-002.

2. SAMPLING PROCEDURES

2.1 Basic Sampling Guidelines

Overview. The purpose of the field sampling procedures described in this section is to estimate the overall concentration of PCBs, rather than to identify "hot spots" with high concentrations. Thus the sampling methods described here are intended to produce representative samples of fluff, since this material is generally considered to be the most likely to contain PCBs, if they are present at all.

Fluff is often stored in piles on the shredder site before being shipped to a landfill for disposal. We will differentiate between *stored fluff*, which is stored in piles at the shredder site, and *fresh fluff*, which is produced at the site while sampling is being done. In particular, we will describe different sampling procedures for stored and fresh fluff. The former may consist of very large piles which are difficult to access, while the latter is being continuously produced and is generally easier to sample.

In collecting samples, care should be taken to minimize the disruption of the normal operations of the shredder. This is important not only from the standpoint of maintaining good relations with the shredder operator, but also because the samples collected should, to the greatest extent possible, reflect the normal output of the shredder. If shredding procedures are altered in order to collect samples, the data collected may not reflect the usual PCB content (if any) of the shredder output streams.

How Large Should Samples Be? The materials present in fluff are very heterogeneous, and samples must be relatively large in volume to get a good cross-section of the types of materials present. In most cases, we suggest taking individual samples of about one gallon in size. Many of the sampling procedures we recommend require combining several samples of which each is one-half to one gallon in size. In any case, we recommend that the total volume of fluff collected at a site be at least five gallons.[1]

Duration of the Sampling Period. When sampling from the stream of fresh fluff as it is being produced, the duration of the sampling period is an important consideration. Samples

[1] This recommendation is based on techniques for sampling heterogeneous materials presented in a seminar titled "Sampling Methodologies for Monitoring the Environment" by Pierre Gy and Francis Pitard Sampling Consultants.

may be collected only once during a visit, once each half-hour for several hours, or once each half-hour for an entire day. The longer the duration of the sampling period, the greater the likelihood of obtaining a representative sample of shredder output, since it is more likely that the materials shredded will be representative over a longer period. It is difficult to give fixed guidelines on how long to collect samples, but, in general, we suggest collecting samples of fresh shredder output each half-hour for a period of at least eight hours, or one working day. In any case, the general operating procedures followed at the shredder should be considered in deciding how long to make the sampling period and how frequently to collect samples. For example, if an operator runs white goods in the morning and automobiles in the afternoon, samples should be taken of each.

When different types of materials are recycled, the PCB content of the samples may vary considerably. Thus, regardless of the duration of the sampling period and the number of samples collected, the results of one day's sampling cannot be extrapolated to any other day unless the materials that are recycled on the two days are similar. Because of the variability in the materials shredded, high or low concentrations of PCBs may be found at one visit but not on a subsequent visit. Because of this fact, it is important that the samples collected at a site are as representative as possible of the usual activities of the shredding operation.

Collecting Representative Samples. The basic technique that we recommend for collecting samples requires two steps. First, a square, two-dimensional grid is superimposed over the material that is to be sampled, as shown in Figure 2. Stretching strings across the material is an efficient way of constructing the grid; the cells should be approximately equal in area. Next, samples should be taken from each cell in the grid and combined. This type of sampling is called *grid sampling*. It may be applied in sampling either fresh or stored fluff. The purpose of grid sampling is to obtain a sample that is spread throughout the material that is being sampled. Larger grids (e.g., four squares on each side) may be used, but a three-by-three grid is generally sufficient for this purpose.

When sampling material that is spread out in a grid, it is important to dig down into the material *to the bottom*. Finer particles will settle down and samples that are simply grabbed off the top will not be representative.

In order to collect more than one grid sample, use *replicated grid sampling*. Using this procedure, multiple samples are taken from each cell and combined in separate buckets, as illustrated in Figure 3. Each bucket is analyzed as an independent sample of material.

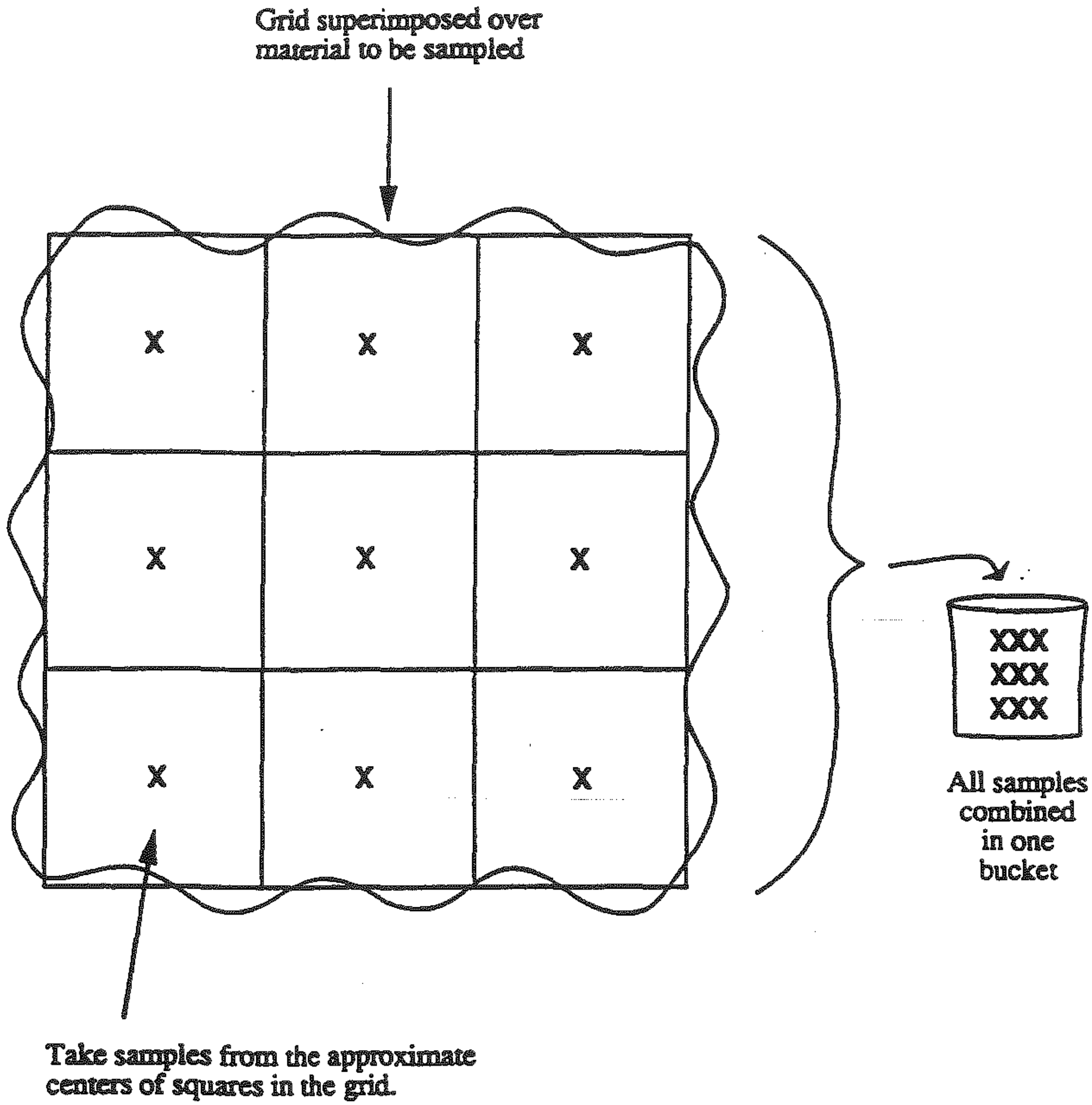

Figure 2. Illustration of grid sampling

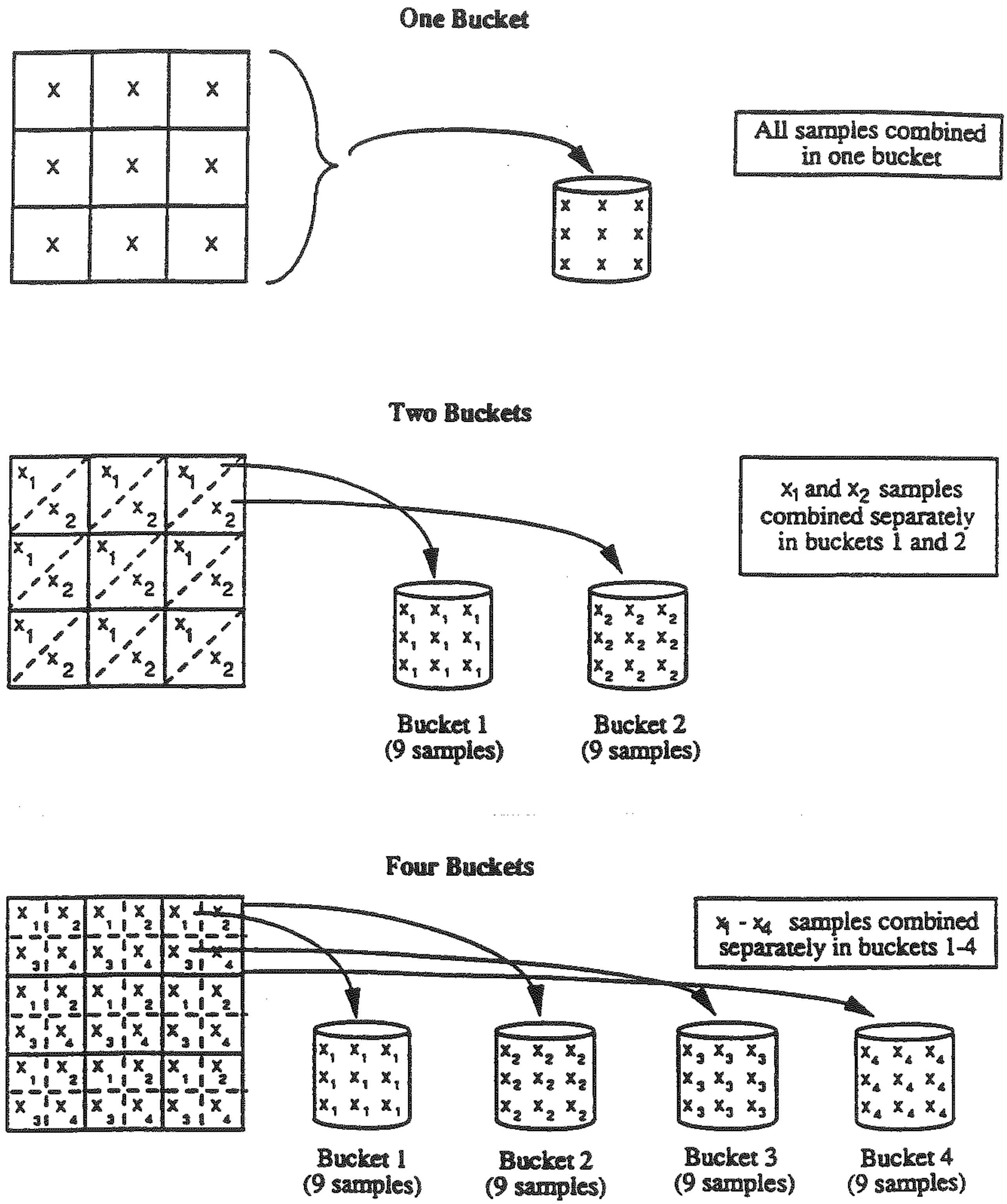

Figure 3. Replicated grid sampling

In some cases, grid sampling is not a practical option. For example, when sampling from large piles of fluff, it will be necessary to collect samples from various points in the pile without formally creating a grid. Detailed descriptions of how to sample stored fluff will be discussed below.

Sampling Over Time. When samples are collected from freshly produced fluff, samples must be collected at different times; for example, sampling might be done each half-hour over a 4- or 8-hour period. Figure 4 illustrates the basic technique for sampling over time. Here a separate grid sample is taken at each point in time, with each time period represented by a different bucket. Each bucket may consist of 1 gallon or more, but only one bucket per time period should be collected. If three samples are required, then samples should be collected at three different time periods (e.g., every 2 hours for a 6-hour period). If more samples are required, then either more time periods must be sampled (e.g., every hour for a 6-hour period) or samples must be collected for a longer duration (e.g., every 2 hours for a 12-hour period).

How Many Samples Should Be Collected? The number of samples that need to be collected depends on the accuracy required. As we will see in more detail later, about 10-20 samples should be sufficient for most purposes. For example, in sampling over time, 16 samples could be taken at half-hour intervals over the course of an 8-hour work day. These samples can be combined, using the technique of *compositing* which will be discussed later in Section 3.2, to reduce laboratory costs. Of course, fewer samples can be taken but at the risk of greater error. In Section 4, we will discuss the trade-offs between sample sizes and the reliability of conclusions.

What Equipment Should be Used? Because of the size and heterogeneity of materials that are produced at shredder sites, conventional core-sampling tools are usually of little use. Front-end loaders and backhoes may be useful for transporting and arranging materials, particularly if large amounts of fluff are involved. Similarly, trowels, rakes and shovels may be useful for smaller amounts of fluff. Because of the difficulty in manipulating fluff, it may be necessary to pick it up by hand and place "grab samples" manually in gallon containers. If available, a rotating gravity tumbler drum (RGTD) may be useful for mixing samples.

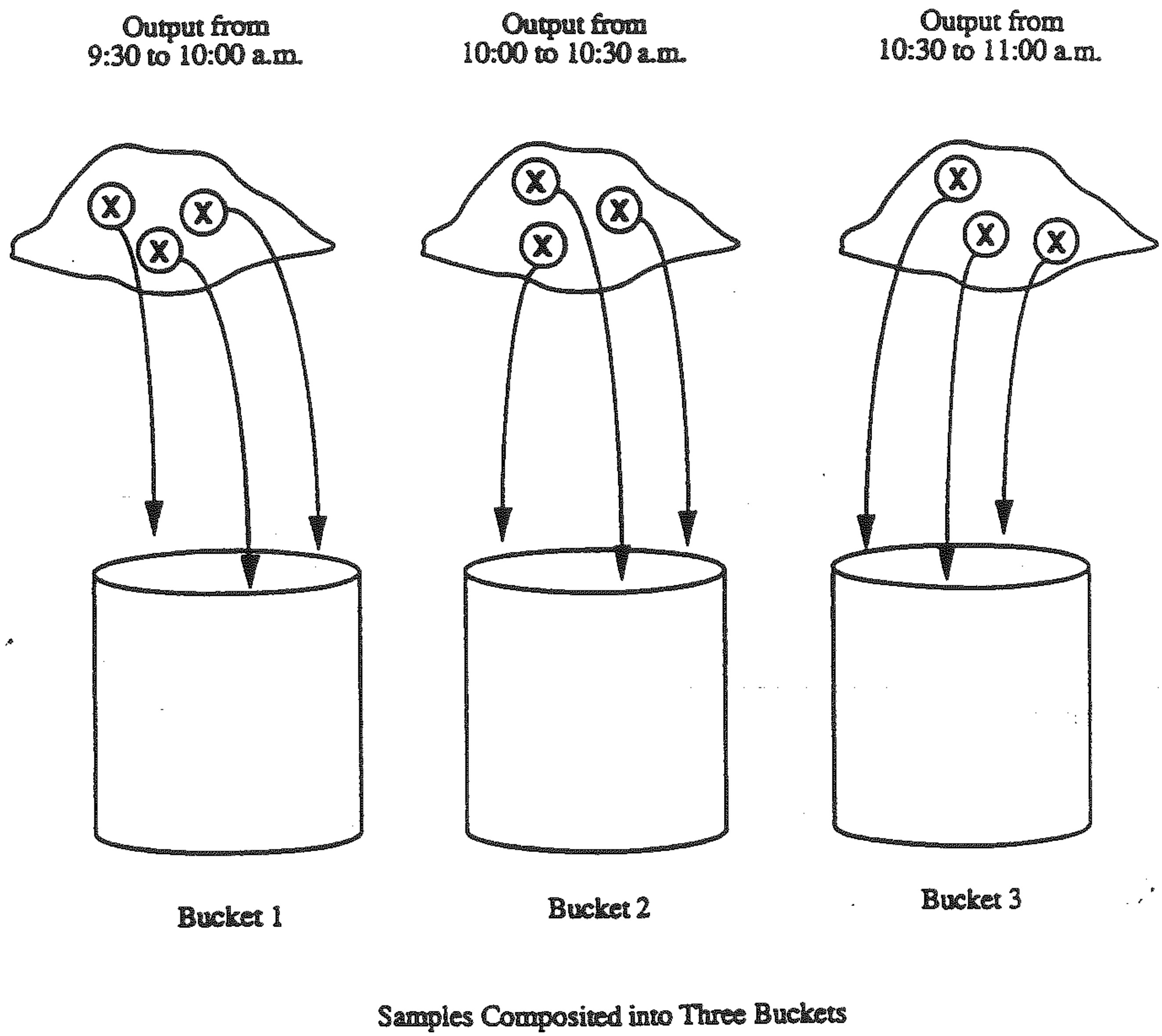

Figure 4: Sampling over time

Cleaning Equipment and Handling Samples. Whatever equipment is used, it must be clean in order to avoid contaminating the samples that are collected. Furthermore, equipment should be cleaned regularly, preferably after each sample is taken. To clean shovels, hoes, buckets, containers, and other equipment, soak them in dilute (20%) nitric acid and then rinse them three times, first with deionized water, then acetone, and finally hexane. Alternatively, steam cleaning can be used; if the steam condensate is free of PCBs, it can be disposed of easily. By comparison, disposal of solvents is always expensive.

If equipment is not cleaned, samples can become cross-contaminated. Cross-contamination occurs when PCBs from a sample that *is* contaminated are transmitted to a second sample which was *not previously* contaminated. This problem can occur when materials are not handled carefully and one sample leaks into another, or when equipment is not cleaned and a residue of PCBs builds up and is transmitted to multiple samples.

Besides keeping equipment clean, it is important to handle samples carefully. All samples should be clearly labelled, indicating the time, date and location. Samples should be stored in clean, sturdy containers. If samples are handled manually, gloves should be changed after collecting each sample.

Clearly, the cleaning of equipment can be cumbersome; moreover, it will be impractical in most circumstances to clean large equipment, such as backhoes. However, small equipment and containers should be cleaned as often as possible. While the risk may be small, it is in the best interests of both the shredder and environmental agencies that samples be as free as possible from cross-contamination. Cross-contamination can lead to erroneous conclusions about the level of toxic substances in the media. For example, stored fluff may be contaminated by fresh output, leading to the erroneous belief that the stored material may not be deposited in a sanitary landfill. Cross-contamination is especially serious when it occurs with samples from different sites, since questions of liability may be involved.

2.2 Sampling Fluff

General Guidelines. As described earlier, fluff is generated as a waste product which is separated from recyclable metals after the shredding operation. First, ferrous and nonferrous materials are separated using magnetic devices, and then fluff is separated from the metals either by using cyclone blowers or by washing with water, most commonly the former.

Fluff may either pile up below the cyclone separator or it may be removed to storage piles using conveyor belts.

There are generally three sources of fluff at a shredder site. First, fresh fluff is continuously being produced during the shredder operation. Second, there may be piles of stored fluff, although most shredder operators regularly ship fluff to avoid wasting storage space. Third, some fluff, which we will call *spillover*, is likely to have piled up around conveyor belts and other equipment. Although the basic sampling procedures are similar, we will give directions for sampling each form of fluff separately.

Fresh Fluff: Front-End Loader Assisted. We will describe two methods for sampling fresh fluff, the first of which involves the use of a front-end loader. This method is preferred for reasons of safety, sampling consistency, and minimal facility interruption.

Briefly, the front-end loader method involves (1) collecting the fluff in the front-end loader bucket as it is produced, (2) spreading the collected fluff out on the ground, and (3) taking samples from the fluff after it has been spread out on the ground. In order to use this method, you will need a front-end loader, which should have a safety cab and should be used only by an experienced operator. You will also need a clean space of ground on which to spread out the fluff. In some cases, it may be necessary to arrange with the operator to start and stop the shredder at appropriate intervals.

First, the front-end loader bucket should be positioned under the mouth of the cyclone (or the end of the conveyor belt, depending on which is used) during shredding to collect the fluff. The shredder should run until the bucket is full, typically about 3 minutes, or the equivalent of about two automobiles. (Note: If large objects are being shredded, it is preferable to process the entire object, rather than part of it.) After the shredder has stopped, move the front-end loader to an open, clean area for spreading the fluff. This area should be about 10 feet square, or large enough that the contents of the front-end loader can be spread evenly to a depth of about 1 foot.

Second, have the front-end loader operator spread the collected fluff on the ground in a square area to an even depth of about 1 foot, using the back of the bucket. Divide the square into nine roughly equal subsections, as shown in Figure 2. Take one-half gallon of material from the approximate center of each subsection, using a shovel and digging down into the material; combine the samples in the 5-gallon bucket. Smaller samples may be collected on a tarpaulin placed under the cyclone or conveyor, moved to a clear area and then spread with a rake. For small samples, four roughly equal subsections may be used, with a half-gallon being selected from the center of each one.

At some sites, the fluff stream is fed continuously into rolloff boxes which can contain up to 20 cubic yards of material. In order to collect samples of fluff at these sites, the boxes must be pulled away from the output stream, which can then be collected using a front-end loader as described above.

Fresh Fluff Sampling Without a Front-End Loader. Arrange for the operator to shut down the line after shredding material for about 3 minutes. Take five one-gallon samples as follows. First, take four one-gallon samples by systematically sampling at four equidistant points around the perimeter of the pile, approximately 1 foot above the ground. Dig about 18 inches into the pile horizontally, or, depending on the size of the pile, far enough to obtain layers of fluff deposited at different times. Take the fifth sample from the center of the pile, digging down about a foot into the pile.

Stored Fluff. It is much more difficult to obtain representative samples from stored piles of fluff, but such samples are potentially more useful because they may be more representative of the normal output of the shredder. (We will assume that the stored pile to be sampled is large; small piles can be raked into a square shape, divided into nine roughly equal subsections, and sampled as described above for fresh fluff.) In collecting samples from stored piles of fluff, the objective is to obtain samples of the *oldest* fluff, the *deepest* fluff, and two samples of *surface* fluff. If a large pile of new fluff has been stored next to a smaller pile of old fluff, then the deepest fluff may not be the oldest. However, if the oldest fluff is also the deepest, take a sample half-way between the bottom and the surface in place of the deepest fluff. The procedures described below, which are illustrated in Figure 5, will provide a total of 20 one-gallon samples. To prevent cross-contamination between samples, collect one five-gallon bucket at a time.

First, take five one-gallon samples of surface fluff from the edge of the pile, at equal distances around the pile, one foot off the ground. Dig straight into the surface, including the actual surface material in the sample.

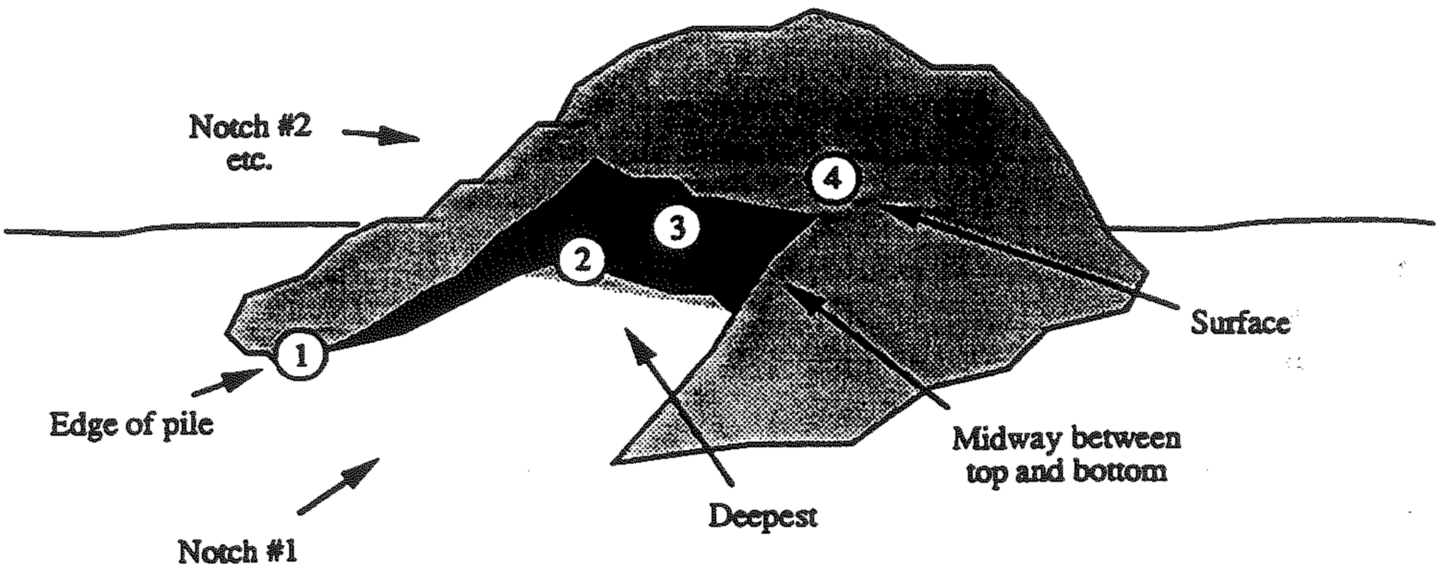

Figure 5. How to sample stored fluff

1. Take five one-gallon samples of fluff at equal distances around the edge of the pile.
2. Cut five notches at equal distances around the pile and take a one-gallon sample from the deepest fluff in each notch.
3. Take five one-gallon samples of the oldest fluff.
4. Take five one-gallon samples of fluff from the surface of the pile.

Second, use heavy moving equipment (such as a front-end loader) to cut five notches in the pile for the other samples, as shown in Figure 4. These notches should be located at equal distances along the perimeter of the pile, if possible. From each notch, take a one-gallon sample from the fluff that is deepest down in the pile. Some care may be required to get a sample of the deepest fluff in the notch, since fluff from the surface may fall down into the notch. One approach would be to have the operator remove upper layers of the pile before cutting the notch; it might also help to take the sample from the center of the notch, rather than the sides where material is more likely to fall into the notch. In making notches and collecting samples, remember that safety is a paramount consideration. Do not cut notches deeper than five feet in height. Proceed with caution at all times.

Third, collect five one-gallon samples of the oldest fluff. You will have to ask the shredder operator which fluff is the oldest. It may be a particular area of the fluff pile, or it may be the deepest layer. If it is not known which fluff is the oldest, then take a one-gallon sample from a point mid-way between the bottom of the pile and the surface in each of the notches.

Finally, collect five one-gallon samples of fluff from the surface of the pile at points near the center of the pile. The notches may provide easy access to points near the center of the pile.

As noted above, this procedure will result in 20 samples. After reviewing Section 4, which discusses analyzing the samples, you may decide that more samples are needed. The number of samples may be increased by taking more samples at each of the steps described above. For example, if *six* samples are taken from the perimeter, *six* notches are cut, etc., *six* samples of the deepest fluff are taken, and so forth, there will be 24 samples.

Spillover. During normal shredding operations, fluff will pile up along conveyor belts and cyclone separators. We will refer to this fluff as spillover. Spillover tends to consist of smaller particles, sometimes called "fines". Because these "fines" are suspected of being more susceptible to PCB contamination, you may want to take some samples of this material.

Inspect the area along the conveyor belt for spillover. Take five one-gallon samples of any spillover material along the conveyor belt at approximately equal distances. Mix these five one-gallon samples into one five-gallon bucket. If desired, repeat this procedure to fill additional buckets. In some cases, the pattern of spillover may not be regular enough to use this strategy. If necessary, identify the areas where spillover exists and take a one-gallon sample (or more) from each location to achieve one five-gallon sample (or more) that is representative of the spillover material.

2.3 Quality Assurance

The Necessity for Quality Assurance. There are many sources of error in evaluating contamination by PCBs or other substances. First, since we are selecting samples of material to analyze, there is *sampling error*, which is due to the fact that not all of the material is being analyzed and thus there is variability in the results from one sample to another. (Please note that sampling "error" is a statistical term which reflects the natural variation that exists from one sample to another. This term does *not* imply any "error" on the part of those collecting the samples!) Second, there is *analytical error*, which results from the difficulty of accurately identifying and quantifying the substances present in a given sample of material. Third, there is the possibility of errors through *cross-contamination*, which results from PCBs (or other substances) being introduced into a sample during the collection process. For example, PCBs might be present in the buckets used for data collection and then transferred to the fluff during the process of collecting samples.

Below we describe two quality control procedures. The first, the use of field blanks, will help to detect the presence of cross-contamination. The second, the analysis of duplicate samples, will help to quantify analytical error.

More extensive treatment of quality control issues can be found in the following publications:

OTS Guidance Document for the Preparation of Quality Assurance Project Plans. USEPA, Office of Toxic Substances.

Test Methods for Evaluation Solid Waste. USEPA, Office of Solid Waste and Emergency Response. SW-846, Third Edition. 1986

Analytical Chemistry of PCBs, Mitchell D. Erickson. Butterworth Publishers, Stoneham, Massachusetts. 1986.

Field Blanks. Field blanks are materials that are known *not* to contain PCBs, but which are handled using the procedures specified for collecting fluff, soil or other materials which are suspected of being contaminated. When the field blanks are analyzed, they should not contain any PCBs. Empty containers, such as buckets, should be taken to the site, opened for the duration of the time that sampling is done, and then closed and taken to the laboratory, where wipe samples can be taken and analyzed. This procedure will indicate whether containers were contaminated either before data collection or through improper handling. The use of field blanks helps protect the operator by indicating when samples are being collected improperly and possibly giving incorrect findings.

Duplicate Analyses. As a general practice, at least 10% of the samples selected should be analyzed in duplicate, meaning that the same sample (or parts of it) should be analyzed twice. In particular, if one sample has an extremely high concentration of PCBs relative to other samples, replicates should be analyzed for verification; Section 3 will discuss how replicates are formed. Preliminary studies suggest that laboratory or analytical error for the procedures described in this manual are, on average, about 30% of the estimated PCB level, ranging from 5% to 80%. If the results for replicates vary by more than this, it may be due to inadequate laboratory procedures.

3. PREPARATION FOR ANALYSIS

3.1 Preparing Fluff Samples for Laboratory Analysis

Overview. After samples are collected in the field, they must be prepared for laboratory analysis. Because of the extreme heterogeneity in some of these materials, one part of the sample can give an estimate which is not representative of the whole. In this section we will discuss procedures for splitting the collected samples into several replicates so that each replicate is representative of the original sample, containing the same components in approximately the same proportions. One or more of these replicates can then be analyzed to test for PCB contamination. The reason for creating such replicates is, first, to reduce the amount of material that is actually subjected to laboratory analysis, and, second, to create backup replicates for retesting if this becomes necessary. Altogether, at least five gallons of material should be prepared for analysis, with about 400-500 grams of this material actually undergoing analysis. In Section 3.2, we will discuss compositing, a technique for combining samples to reduce laboratory costs.

Step 1: Weigh the Fluff Sample. Determine the weight of the entire fluff sample. Since 400-500 grams of fluff are required for each replicate, weighing will indicate what fraction of each bucket of material will comprise a replicate. Generally, a five-gallon bucket of material will produce about eight replicates. However, if the weight of your fluff sample is substantially smaller than 3,200 grams or larger than 4,000 grams, then divide the weight of the sample by 450 to determine the number of replicates.

Step 2: Sort Out Large Pieces of Material. Pour the contents of the bucket onto a 9.5 mm screen above a laboratory tray or table with a nonabsorbent surface. Pieces that do not pass through the screen should be cut into pieces or milled until they are small enough to pass through the screen and then mixed into the sample. Larger pieces of material (metal, atypical wire, hard plastics) that cannot be cut with shears should be segregated. Smaller pieces of wire or other solid material that are distributed uniformly throughout the sample should remain with the sample.

Step 3: Divide Material into Replicates. Uniformly distribute the fluff which remains over the tray or table. This material will vary in composition, and dense granular materials (e.g., dirt, pulverized metal, plastics, glass, ceramics, etc.) will tend to settle below lighter material, such as shredded fabric and foam rubber. Care must be taken to ensure that these components of the fluff are uniformly distributed throughout the tray.

Using the information on the total weight of each sample, divide the fluff on the table into approximately equal parts, with the number of parts being equal to the number of replicates to be obtained. In most cases, you will divide the material on the table into eight roughly equal parts to form eight replicates.

Step 4: Cut Large Pieces and Distribute Among Replicates. In Step 2, large pieces that could not be easily cut were removed and set aside. Now cut these pieces with either tin snips or a hack saw, assuming that the materials can be cut using one of these tools, and distribute the pieces of the material equally among the replicates. If both cutting methods fail, the material should be analyzed separately, and any detected PCB levels should be prorated based on the number of replicates, the weight of the replicate, and the weight of the material. For example, suppose that eight replicates are produced, each weighing about 450 grams, and a large piece of material, weighing about 50 grams, cannot be cut. If the piece of material is analyzed and shown to have a PCB level of 30 ppm, then the revised PCB level for any replicate that is analyzed should be calculated as

$$\text{Revised PCB Level} = \frac{\frac{(30)(50)}{8} + (\text{Replicate PCBs})(450)}{\frac{(50)}{8} + (450)}.$$

Step 5: Place Replicates in Containers. Place each replicate in a container. Seal, label and number the container so that both the replicate number and original bucket number are included (e.g., Replicate #2 of 4 from Bucket #12).

3.2 Compositing

Because of the expense of analyzing samples at the laboratory, equal sized parts of two or more different samples are sometimes mixed together and sent to the laboratory for analysis as if the mixture were only one sample. Samples can also be composited after the preparatory steps described in Section 3.1; this method is prefereable to compositing in the field, although it may be less cost effective. We will refer to the mixed sample as a *composite* sample (or simply a *composite*) and to the parts that were mixed together as *subsamples*. This procedure is illustrated in Figure 6. Because the subsamples have been mixed, the concentration of PCBs or other toxic substances in the composite sample should be roughly equal to the average of the concentrations

1. Mix each sample thoroughly

2. Divide samples into three or four subsamples

3. Take one subsample from each sample and composite them together. Subsamples should be about the same size

4. Mix the composite sample thoroughly before analyzing

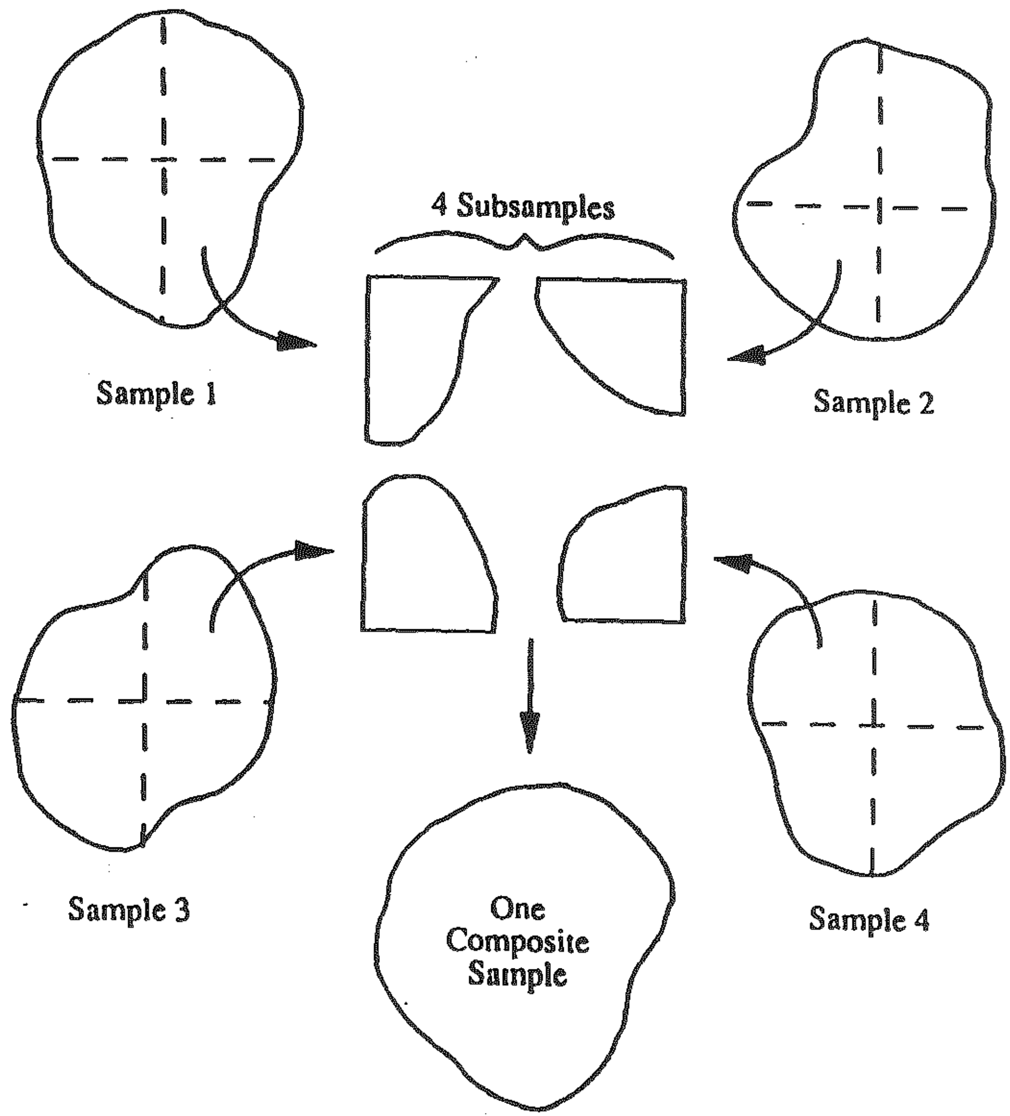

Figure 6. Guidelines for compositing samples

that would have been obtained by analyzing the subsamples individually, even though the concentrations in the subsamples may vary substantially due to the heterogeneous nature of fluff. Assuming that laboratory errors are not large compared with sampling error – which is almost always the case when analyzing samples of fluff – compositing effectively reduces the [redacted] of laboratory analysis while maintaining about the same level of accuracy as if the samples had been analyzed individually.

When forming composite samples, several general rules should be followed. First, mix each sample thoroughly *before* compositing. Second, divide each sample into three or four parts, or subsamples. All the subsamples must be of roughly equal size. One simple method for dividing the sample is to spread the sample out on a clean area and split it into two, then four, equal parts. Another method is to take scoops of the material and put the first scoop in the first subsample, the second scoop in the second subsample, the third in the third subsample, and so on, repeating the process until the material is exhausted. Finally, take one subsample from each of the samples and combine them to make up the composite sample. Mix the composite sample thoroughly.

If the samples are from different sites or different parts of a single shredder (e.g., stored and fresh fluff), then use only one subsample – not the entire sample – for compositing. If large concentrations of toxic substances are found, it may be desirable to analyze part of each sample separately.

Throughout the next section we will discuss the effects of compositing on various analytical procedures. While compositing is normally considered to involve *two* or more subsamples, it is preferable for simplicity in presenting tables to speak of composite samples which consist of *one* or more subsamples. For example, if four samples of fresh fluff are taken over a period of 4 hours (as described in Section 2.2), these samples might be analyzed as one composite of four subsamples, two composites of two subsamples each, or as four "composites" of one subsample each.

4. EVALUATING SAMPLE RESULTS

4.1 Possible Sources of Error

In Section 3.2 we noted that there are several possible sources of error in assessing contamination by PCBs or other toxic substances. Specifically, we discussed errors due to sampling, laboratory analysis, or cross-contamination when the samples are collected. Cross-contamination creates bias and can be avoided only by careful handling of materials. However, the first two types of errors can be taken into account by using the statistical methods described in this section. For example, if the laboratory analysis of five samples of fluff at a given site shows an average PCB concentration of 60 ppm, does this conclusively indicate that the entire output of fluff from that site actually contains more that 50 ppm? Is it possible that the actual concentration is 45 ppm and the difference (i.e., 60 ppm instead of 45 ppm) is due to sampling error and/or laboratory error? In this section we discuss a statistical procedure, called a confidence interval, for answering such questions.

Because of the errors associated with the selection and analysis of samples, we cannot be sure that the numerical value (e.g., an average PCB concentration of 60 ppm) resulting from a series of laboratory tests is *exactly* accurate. Instead we must use statistical analysis to obtain an interval (e.g., 50 to 70 ppm) which we are relatively sure is accurate. This interval is called a *confidence interval* and our degree of certainty is called the *level of confidence*. For example, based on the results of our statistical calculations, we may be 95% confident that the actual average concentration is somewhere between 50 and 70 ppm. In Section 4.2 we discuss the calculations necessary for making statements like this one.

4.2 Confidence Intervals

Overview. The objective of an exploratory study is to estimate the concentrations of PCBs or other toxic substances present in the output streams, soil, or other material at a given shredder site. Because of the sampling error and laboratory error, it is not possible to determine exactly the concentration of toxic substances. However, by using the methods in this section, you will be able to make statements such as, "As a result of our study, we are 95% certain that the concentration of PCBs in this pile of stored fluff is between 40 and 100 ppm." In this statement, the interval "between 40 and 100 ppm" is called a *confidence interval*. Because of sampling and measurement errors, we are never sure of the exact concentration of a given substance in the material we are studying. By calculating confidence intervals, we obtain a range that is *likely* to contain the actual concentration. In this manual, all confidence intervals are calculated to have a 95% chance of being correct – i.e., of including the actual PCB concentration – and are thus called *95% confidence intervals.*

Preliminary Calculations. The first step is to make two basic calculations, the average and standard deviation of the samples. These calculations are illustrated in Worksheet 1. In the example given in Worksheet 1, 6 samples are analyzed and found to have measured PCB concentrations of 5, 15, 65, 11, 33, and 27 ppm, respectively. For these data, the average and standard deviation are 26 and 21.72 ppm.

Confidence Intervals for Concentrations. To find estimates of the actual concentration of PCBs or other substances, follow the calculations shown in Worksheet 2. For the example data shown in Worksheets 1 and 2, the lower and upper limits are 3.21 and 48.79 ppm, respectively, so that we are 95% certain that the estimated PCB level is between 3.21 ppm and 48.79 ppm.

Interpretation of Estimated Concentrations. What conclusions can be made based on the estimates that you have made? There are several ways to answer this first question, but the overriding concern should be whether estimated levels of PCBs and/or other toxic substances are considered to be too high. Suppose, for example, we regard 50 ppm to be an acceptable level of PCBs in shredder output. There are three possible cases:

- Case 1: The *upper limit* of the interval falls *below* 50 ppm. In this case, we are 95% certain that the level of PCBs is acceptable.
- Case 2: The *lower limit* of the interval falls *above* 50 ppm. In this case, we are 95% certain that the level of PCBs is *not* acceptable.
- Case 3: The *interval contains 50 ppm*. In this case we are unsure as to whether the level of PCBs is acceptable. If the interval is not too wide (e.g., 45 to 51 ppm) then we might be willing to assume that the level of PCBs is acceptable; otherwise, the study is inconclusive.

With regard to Case 3, it should be noted that most of the time it can be avoided by specifying a large enough sample size when planning the study; this problem will be discussed shortly. Furthermore, whenever it is necessary to make an absolute judgment about the safety of shredder

WORKSHEET 1: Calculation of Average and Standard Deviation

Example Data. Assume that 6 composite samples are analyzed and are estimated to have these PCB levels:

PCBs (ppm)	Squared PCBs
5.0	25.0
15.0	225.0
65.0	4,225.0
11.0	121.0
33.0	1,089.0
27.0	729.0

Step 1: Find the sum ($\sum$):

$$\sum x = 5 + 15 + \ldots + 27 = 156.0.$$

Step 2: Find the sum of the squares:

$$\sum x^2 = 25 + 225 + \ldots + 729 = 6{,}414.0.$$

Step 3: Find the average:

$$\text{Average} = \frac{\sum x}{\text{Sample Size}} = \frac{156.0}{6} = 26.0.$$

Step 4: Find the Standard Deviation:

$$\text{Variance} = \frac{\sum x^2 - \frac{(\sum x)^2}{\text{Sample Size}}}{\text{Sample Size} - 1}$$

$$= \frac{6414.0 - \frac{(156.0)^2}{6}}{5}$$

$$= 471.9.$$

$$\text{Standard Deviation} = \sqrt{\text{Variance}} = 21.72.$$

WORKSHEET 2: Calculation of Confidence Intervals

Example Data. As in Worksheet 1, the example data consists of laboratory measurements from 6 composite samples, showing the following PCB levels:

	PCBs (ppm)	Squared PCBs
19	5.0	25.0
39	15.0	225.0
42	65.0	4,225.0
	11.0	121.0
	33.0	1,089.0
	27.0	729.0

Step 1: Find the average and standard deviation. Follow the directions in Worksheet 1. For the data shown above:

Average of Samples = 26.0 100

Standard Deviation = 21.72

Step 2: Estimation of Confidence Intervals. In Table 1, find the t-value for a sample size of 6, which is 2.57. Now make the following calculations:

$$\text{Average of Samples} - t\text{-value}\frac{\text{Standard Deviation}}{\sqrt{\text{Sample Size}}} = 26.0 - 2.57\frac{21.72}{\sqrt{6}} = 3.21$$

and

$$\text{Average of Samples} + t\text{-value}\frac{\text{Standard Deviation}}{\sqrt{\text{Sample Size}}} = 26.0 + 2.57\frac{21.72}{\sqrt{6}} = 48.79.$$

Step 3: Interpretation of Confidence Intervals. We are 95% certain that the actual PCB level is between 3.21 and 48.79.

Table 1: t-values for confidence intervals

Number of composite samples	t-values
2	12.71
3	4.30
4	3.18
5	2.77
6	2.57
7	2.45
8	2.36
9	2.31
10	2.26
11	2.23
12	2.20
13	2.18
14	2.16
15	2.15
16	2.13
17	2.12
18	2.11
19	2.10
20	2.09
21	2.09
22	2.08
23	2.07
24	2.07
25	2.06
30	2.05
50	2.01
75	1.99
100	1.98
>100	1.96

*The values shown in the table are taken from Student's t distribution. This distribution is often used as a measure of uncertainty due to sampling and other sources of error output, then the hypothesis testing procedures described in the appendix should be used instead of the exploratory procedures discussed here.

In each of the preceding scenarios, we have used the expression "95% certain." As we discussed earlier, there will always be some uncertainty as to the actual concentration of PCBs because of sampling and laboratory error. When we say that we are 95% certain that the level of PCBs is within a given range, we simply mean that there is a 5% chance that we are wrong. Put another way, this means that if we checked PCB levels at 20 sites (or at the same site at 20 different times) using the procedures described here, we could expect, on average, that our estimate for one of the sites would be wrong.

4.3 Sample Sizes

Sample Sizes and Relative Error for PCB Levels. Because of sampling and laboratory measurement error, we can never be certain of the exact concentration of PCBs. However, by increasing the number of samples analyzed, we can reduce the degree of error in our estimates. How many samples need to be taken? There is no universal answer to this question, but based on data from preliminary studies, we can make rough estimates of the level of error that can be expected from samples sizes ranging from 1 to 25.[1]

When we select a sample and average the measured PCBs, there is always some difference between our *sample average* and the *true concentration* of PCBs in the sampled material. This difference represents error that is due to both sampling and laboratory analysis. The *relative error* is the absolute difference between the *sample* and *true* concentrations divided by the *true* value:

$$\text{Relative Error} = \left| \frac{\text{Sample Average} - \text{True Concentration}}{\text{True Concentration}} \right| .$$

Since the sample average is subject to random fluctuations, the relative error will vary also, and we will never know the relative error for any given sample. However, as the sample size increases,

[1] The estimates for standard errors, sample sizes and precision presented here are based on preliminary data from an EPA-supported study of 85 samples collected at seven shredder sites throughout the country and on a dataset of 200 samples collected and analyzed by various state and local agencies.

the relative errors decrease and, although the relative error may change from one sample to another, we can give a value, the *maximum relative error*, that it will generally not exceed.

Table 2 shows the maximum relative error for estimating PCB levels with sample sizes of 1 to 25. Unfortunately, even to get 50% maximum relative error may require a large number of samples. For example, if 10% white goods are processed (with 90% automobiles or other materials), approximately 25 samples are required to obtain 50% maximum relative error when no compositing is used. Notice that when compositing is used, the number of samples that must be analyzed to achieve a desired maximum relative error is reduced. For example, 64% maximum relative error can be expected when 16 samples are analyzed without compositing. If 18 samples are composited into 9 groups of 2 samples each, however, then 68% maximum relative error can be obtained by analyzing the 9 composited samples. There is a slight increase in maximum relative error (since 68% is greater than 64%), but the laboratory costs are reduced almost by half (i.e., 9 samples analyzed instead of 16). Finally, notice that to obtain maximum relative error of less than 25% requires very large sample sizes, even when compositing is used.

In discussing sampling over time in Section 2, we recommended taking samples every half-hour for at least 8 hours, which would result in 16 samples. From Table 2, we see that the resulting maximum relative error would be about 64%, if no compositing is used. This will be adequate when the level of PCBs found is low (e.g., 10 to 20 ppm), but may be unacceptable if a high level of PCBs is found. If the 16 samples are composited into 8 composite samples of 2 subsamples each, the maximum relative error would be about 70% (i.e., slightly higher than that shown for 9 composites of 2 subsamples each). If the 16 samples are composited into 4 composites of 4 subsamples each, the maximum relative error increases to 106%. Again, this is probably acceptable when the level of PCBs is low, but will not be acceptable when the PCB level is, say, 20 or 30 ppm. The sampling procedures described in Section 2 for stored fluff will produce 20 samples; the maximum relative error for 20 samples would be similar to those for 16 samples, although slightly lower.

The key factor in deciding how many samples to take is the maximum relative error desired. In deciding the maximum relative error, the concentration of PCBs must also be taken into account. Suppose, for example, that the actual PCB concentration is 10 ppm and that we estimate the level of PCBs as being between 0 and 20 ppm. Then the maximum relative error is 100%, but since the estimated PCB concentration is well below the 50 ppm standard, this level of error is acceptable. However, if the actual PCB concentration is 50 ppm and we estimate that the level of PCBs is between 0 and 100 ppm, the maximum relative error is again 100%, but it is

Table 2: Relative error for estimating PCB levels with sample sizes of 2 to 25

Total samples collected	Number of composites analyzed	Subsamples in each composite	Maximum relative error*
2	2		1084%
4	4		192%
9	9	1	93%
16	16		64%
25	25		50%
4	2		793% 466
8	4		140%
18	9	2	68%
32	16		47%
50	25		36% 408% rel. error
8	2		597% 351
16	4		106%
36	9	4	51%
64	16		35%
100	25		27%
16	2		468%
32	4		83%
72	9	8	40%
128	16		28%
200	25		21%

*A relative error of 50% means that with 95% certainty, the estimated average concentration will be within 50% of the actual average concentration. A relative concentration of more than 100% (e.g., 150%) has the same interpretation (e.g., the estimated concentration will be between 0% and 1.5 times the actual concentration).

clearly not acceptable. In exploratory studies, high relative errors can generally be tolerated, since more data can be collected to investigate the situation more closely if high levels of PCBs are suspected.

Sample Sizes and Relative Error for Lead and Cadmium. In general, the samples sizes required for estimating PCB levels should be more than adequate for estimating levels of lead and cadmium. Analysis of preliminary data indicates that both sampling and measurement errors are smaller for these substances than for PCBs. Comparable data for other toxic substances is not available.

4.4 Analytical Methods for Other Objectives

Exploratory studies are only one possible objective of sampling for PCBs at shredder sites. Another objective would be monitoring shredder output to make sure that PCB levels do no exceed a given level. In practice, monitoring programs are often put in place by shredder operators to verify to landfill operators that fluff from the site meets TSCA landfill regulations. A third objective would be "clean-up" verification, which might be required if a site – or the fluff produced at a site – were found to be extensively contaminated with PCBs. In both cases, the statistical method of *hypothesis testing* would be used in place of confidence intervals. These topics are discussed in an appendix.

4.5 Additional Reading

For more details on statistical procedures for use in environmental sciences, see

Statistical Methods for Environmental Pollution Monitoring, Richard O. Gilbert. Van Nostrand Reinhold Company Inc. 1987.

APPENDIX

ANALYTICAL METHODS FOR REGULATORY PROCEDURES

A.1. Introduction

A.1.1 Objectives of Regulatory Procedures

As discussed in the Section 1, there are several possible objectives in sampling for PCB's. Analytical methods for exploratory studies were discussed in Section 4 of the *Sampling Guidance*. The two objectives of regulatory functions are monitoring and clean-up verification. This appendix discusses statistical methods for these applications.

When monitoring the output of a shredder site, the monitoring agency – which may be the shredder operator or an outside agency – develops a program of regular sampling and analysis of materials to assure that shredder output meets specified standards. In this situation, the output is *assumed not to be contaminated* until the samples collected for the monitoring program demonstrate otherwise.

In the event that a shredder site or output from a site is established as being contaminated with PCB's – if large piles of stored fluff or the soil around the site are known to contain high concentrations of PCB's, for example – then it may become necessary for the site to undergo some form of clean-up or change in operating procedures. In this case, the site (or output from it) is *assumed to be contaminated* until the samples collected during the clean-up verification demonstrate otherwise.

The statistical methods for these two applications appear to be very similar. In each case, the average PCB concentration is found and compared with a known value to make conclusions about the PCB level. Although the procedures differ slightly in the methods of calculation, the important difference is in the decision-making process indicated by the italics shown above. While the procedures discussed in Sections A.2 and A.3 may appear redundant, purpose of the analysis and the conclusions that would be reached are different.

A.1.2 Sampling Issues

A number of sampling issues arise in planning monitoring and clean-up verification programs. These issues are mainly related to the frequency and duration of visits to the shredder site to collect samples. This is more of an issue for monitoring programs, where regular visits are more likely to be required.

Should samples be collected once a week? Once a month? Four times a year? In deciding how often to collect samples, it must be remembered that the material output from a shredder is the direct product of the input to the shredder. The primary objective in sampling is to obtain a representative sample of the material that is output during the normal operation of the shredder. It is possible for the shredder operator to run only "clean" materials – for example, materials that have had all electric motors, air conditioning units, etc., removed – while the samples are being collected. If this is done, the samples may not reflect the materials that are normally output at the shredder.

Ultimately, the question of "how often" is really less important than whether the samples collected are representative of the normal output of the shredder. Obviously, samples taken four times a year may not be representative of the output being produced during the rest of the year. However, sampling even once a week may not be sufficient if the samples selected are not representative.

When monitoring programs are in place, sampling usually takes place at regular intervals, ranging anywhere from four times a year to once a week. Within this context, samples may be collected once a visit, once each half-hour for several hours, or once each half-hour for an entire day. As part of either a monitoring or a clean-up program, we suggest collecting samples of fresh shredder output each half-hour for a period of 8 hours, or one work day. As noted in the *Sampling Guidance*, the longer the duration of the sampling period, the greater the likelihood of obtaining a representative sample of shredder output. Sampling for an entire working day is likely to provide good representation of the shredder's normal operations, at least for that day, and also will provide a minimum number of samples for statistical analysis.

A.1.3 Hypothesis Testing

As we have noted, there are several possible sources of error in assessing contamination by PCB's or other toxic substances. For exploratory studies, we used confidence intervals as a statistical procedure for analyzing data in the presence of error. For monitoring and clean-up programs, hypothesis tests are the primary analytical tool.

In hypothesis testing, an assumption is made – for example, that the normal fluff output of a given shredder site has a PCB concentration that is 50 ppm or less – and then evaluated in relation to the results of a laboratory test. For example, suppose that laboratory tests indicate that the average concentration in samples collected is 60 ppm. We know that because of sampling and measurement errors, the *actual* concentration is not *exactly* 60 ppm. In an hypothesis test, we do a set of calculations which provide a numerical cut-off against which our sample value is compared. This cut-off depends on the number of samples analyzed and some other considerations. For example, suppose that the cut-off is 75 ppm. Comparing the sample estimate of 60 to the cut-off value of 75, we would conclude that the laboratory results are within the range of sampling and laboratory error and that we do not have sufficient evidence to conclude that the output of the shredder is more than 50.

A.2. Monitoring

A.2.1 Considerations in Monitoring Programs

As we discussed earlier, the objective of a monitoring program is to make sure that the output of a shredding operation meets some specified standard. Frequently this standard is taken to be 50 ppm, since this is the requirement for TSCA landfills, but other standards might be considered as well. In this manual, we will use three possible standards – 25, 50 and 100 ppm – as illustrations. Monitoring programs may also vary with respect to the frequency and duration of sampling. Samples of output materials may be taken weekly, monthly, or quarterly, with samples collecting over several hours or an entire day. In most cases, the sample sizes discussed for monitoring are intended for a single visit.

There are two major difficulties in monitoring shredder sites. First, because of the time delay in having samples analyzed, the actual shredder output that is sampled will probably be in a landfill by the time the analysis is done to determine whether it is contaminated or not. Second, the amount of PCB's can be loosely controlled by processing different materials, since, for example, automobiles appear to be less likely to produce PCB contaminated output than white goods. Thus, shredder operators being monitored by outside agencies could deliberately process materials with low PCB levels during the monitoring period. If the materials processed during the monitoring period are not representative of the normal output of the shredder, then the results of the monitoring program will not be valid.

Clearly, monitoring programs, which depend on statistical principles and random inspections, cannot detect all violations. The best strategy for keeping contaminated output out of landfills is to develop monitoring programs that are *likely* to detect *most* violations, so that appropriate enforcement actions can be taken. One of the key steps in developing an effective monitoring program is to collect representative samples. We suggest three steps. First, regulatory agencies can make unannounced visits to the shredder site at randomly chosen times to help assure obtaining representative samples. Similarly, shredder operators can collect samples at irregular intervals to help assure representative sampling. Second, the longer the duration of the data collection period, the more likely that shredder input will be representative; we recommend that the monitoring period last 8 hours or for the normal duration of operating hours. Finally, samples of stored fluff and spillover should be collected, in addition to fresh fluff, since these materials are likely to reflect the output during normal operation even when fresh fluff may not.

A.2.2 Hypothesis Testing for Monitoring Programs

When monitoring the output of a shredder site, it is first assumed that the output streams are *not* contaminated. Samples are collected and chemically analyzed at intervals to monitor the shredder output, and, based on a statistical analysis of these samples, the monitoring agency determines whether this assumption – i.e., that the shredder output is in compliance with safety standards – is reasonable. The process used to make this determination is called a *hypothesis test*. The basic steps are simple: the average and standard deviation are calculated, a cut-off value is determined and the average is compared to the cut-off value. If the average is larger than the cut-off value, then the output is declared in violation, otherwise it is assumed to be in compliance. In the following sections we will discuss how to determine the cut-off value and the sample sizes necessary for making hypothesis tests.

As we discussed earlier, the presence of sampling error and analytical error make it difficult to determine whether shredder output is in compliance with regulations. The fact that chemically analyzed samples are above the safety standard is not sufficient evidence that the entire output from which the samples were taken is in violation. A more careful evaluation must be done to account for sampling and analytical error. The procedure that must be followed is illustrated in an example in Worksheet A-1.

The first step is to find the average and standard deviation using the procedures given in Worksheet 1 in Section 4. Next, the cut-off value must be determined. This value can be found by following the calculations in Worksheet A-1. Finally, to evaluate whether or not shredder output violates the relevant standard, simply compare the average of the analyzed samples to the cut-off value and follow these rules:

- If the average is *larger* than the cut-off, conclude that the output violates the standard
- If the average is *smaller* than the cut-off, assume that the output is in compliance with the standard.

A.2.3 Effects of Sampling and Analytical Error

Like all decisions that are based on statistical methods, hypothesis testing procedures are subject to error. For example, in a pile of fluff that is relatively free of PCB's, we may pick a sample simply by chance that has an unusually dense concentration of PCB's, leading us to conclude that the entire pile of fluff is contaminated. In this case we would *incorrectly conclude that the output was in violation*. On the other hand, in a pile of fluff that is heavily contaminated, we might happen to pick a sample that has a relatively low level of PCB's, leading us to *incorrectly conclude that the output is in compliance*. These two errors have many names in the statistical literature, but they are most commonly called "Type 1" and "Type 2" errors, respectively.

Worksheet A-1: Hypothesis Testing for Monitoring PCB Levels

Example Data. Assume that 4 composite samples are analyzed and have these PCB levels:

PCB's (ppm)	Squared PCB's
70.0	4,900.0
121.0	14,641.0
48.0	2,304.0
51.0	2,601.0

Step 1: Find the average and standard deviation. Use the directions in Worksheet 1. For the example data given above:

Average of Samples = 72.50

Standard Deviation = 33.77

Step 2: Determine the Cut-Off Value. Make the following calculations:

- **Short-Cut Method.** In Table A-1, select the appropriate safety standard and then find the cut-off which corresponds to the standard deviation and sample size that are closest to the yours. For the example data, the standard deviation and sample size are 33.77 (which is close to 35) and 4. Assuming the safety standard is 50, the cut-off is 91.1.

- **Exact Method.** This method is slightly more complicated. First, in Table A-2, find the *t*-value for a sample size of 4, which is 2.35. Now make the following calculation:

$$\text{Cut-Off Value} = \text{Standard} + t\text{-value}\frac{\text{Standard Deviation}}{\sqrt{\text{Sample Size}}}.$$

If the standard is 50 ppm, then

$$\text{Cut-Off Value} = 50 + 2.35\frac{33.77}{\sqrt{4}} = 89.7.$$

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Step 3: Interpretation. Since the average, 72.5, is smaller than the cut-off, 91.1 (using Method 1, or 89.7, using Method 2) we do not have sufficient evidence to conclude that the output exceeds the 50 ppm safety standard.

Table A-1: Cut-off values for monitoring*

Safety Standard	Standard Deviation	Number of Composite Samples Analyzed				
		2	4	9	16	25
25	20	114.2	48.5	37.4	33.8	31.8
	35	181.2	66.1	46.7	40.3	37.0
	50	248.1	83.8	56.0	46.9	42.1
	75	359.6	113.1	71.5	57.8	50.7
	100	471.2	142.5	87.0	68.8	59.2
	150	694.3	201.3	118.0	90.6	76.3
	250	1,140.5	318.8	180.0	134.4	110.5
50	20	139.2	73.5	62.4	58.8	56.8
	35	206.2	91.1	71.7	65.3	62.0
	50	273.1	108.8	81.0	71.9	67.1
	75	384.6	138.1	96.5	82.8	75.7
	100	496.2	167.5	112.0	93.8	84.2
	150	719.3	226.3	143.0	115.6	101.3
	250	1,165.5	343.8	205.0	159.4	135.5
100	20	189.2	123.5	112.4	108.8	106.8
	35	256.2	141.1	121.7	115.3	112.0
	50	323.1	158.8	131.0	121.9	117.1
	75	434.6	188.1	146.5	132.8	125.7
	100	546.2	217.5	162.0	143.8	134.2
	150	769.3	276.3	193.0	165.6	151.3
	250	1,215.5	393.8	255.0	209.4	185.5

*If the average of the analyzed samples is larger than the cut-off value in the table, then conclude that the shredder output violates the given standard. Otherwise, assume that the output meets the standard. The chance of incorrectly finding a violation is 5%.

Table A-2: t-values for hypothesis tests*

Number of composite samples	t-values
2	6.31
3	2.90
4	2.35
5	2.13
6	2.02
7	1.94
8	1.89
9	1.86
10	1.83
11	1.81
12	1.80
13	1.78
14	1.77
15	1.76
16	1.75
17	1.75
18	1.74
19	1.73
20	1.73
21	1.73
22	1.72
23	1.72
24	1.71
25	1.71
30	1.70
50	1.68
75	1.67
100	1.66
>100	1.65

*The values shown in the table are taken from Student's t distribution. This distribution is often used as a measure of uncertainty due to sampling and other sources of error.

Using the procedure described in Worksheet A–1, you will have a 5% chance of making a Type 1 error – that is, of concluding that output is in violation when in fact it is not. The chance of this type of error is 5% regardless of the sample size. The chance of a Type 2 error – the chance of missing violations when they actually exist – does depend on the sample size. Because characteristics of fluff vary from place to place, it is difficult to determine the exact probability of making a Type 2 error, but based on preliminary studies we have made some approximate calculations that are shown in Tables A–3 through A–5. These tables give the chance of correctly identifying violations (i.e., *not* making a Type 2 error) for a range of sample sizes and hypothetical PCB levels for safety standards of 25, 50, and 100 ppm.

For example, in Worksheet A-1, the hypothesis test based on four samples concluded that the output met the 50 ppm safety standard. In Table A-4 (which covers the 50 ppm standard) we see that with 4 composite samples, assuming each consists of 1 subsample, the chance of detecting a violation of even 125 ppm is only 11%. Thus, we should not feel too confident that the material is actually in compliance with the standard. As might be expected, the larger the sample size the greater the chance of detecting violations. This is true if the sample size is increased by analyzing more composite samples or by compositing more subsamples together. Thus, when 9 composites of one subsample each are analyzed, the chance of detecting a violation of 125 ppm is 44%, meaning that 44% of the time a violation of 125 would be detected using procedures like this, while 56% of the time a PCB level of 125 would remain undetected. Notice that the situation improves substantially if 9 composites are used with 4 subsamples each, in which case the chance of detecting a violation of 125 ppm increases to 88%.

A.3. Clean-up Verification

A.3.1 Considerations in Clean-up Verification

In exploratory studies, there is little if any prior knowledge about contamination by PCB's or other substances at a site. In monitoring programs, it is assumed that shredder output streams are in compliance with PCB standards unless the data indicate otherwise. However, when a statistical evaluation is undertaken to verify a site

Table A-3: Chance of finding violations in monitoring with a 25 ppm standard

Total samples collected	Number of composites analyzed	Subsamples in each composite	Chance of detecting violation*				
			Actual PCB concentration				
			30	35	40	50	60
2	2		0.00	0.00	0.00	0.00	0.00
4	4		0.02	0.04	0.05	0.08	0.11
9	9	1	0.08	0.15	0.22	0.33	0.42
16	16		0.13	0.25	0.37	0.56	0.68
25	25		0.18	0.36	0.53	0.75	0.86
4	2		0.00	0.00	0.00	0.00	0.00
8	4		0.03	0.05	0.08	0.14	0.20
18	9	2	0.11	0.22	0.34	0.53	0.65
32	16		0.19	0.39	0.57	0.79	0.89
50	25		0.26	0.55	0.76	0.93	0.98
8	2		0.00	0.00	0.00	0.00	0.00
16	4		0.04	0.08	0.14	0.25	0.35
36	9	4	0.15	0.34	0.51	0.75	0.86
64	16		0.26	0.57	0.78	0.95	0.99
100	25		0.38	0.76	0.93	0.99	1.00
16	2		0.00	0.00	0.00	0.00	0.00
32	4		0.05	0.12	0.22	0.40	0.54
72	9	8	0.21	0.48	0.69	0.90	0.96
128	16		0.36	0.74	0.92	0.99	1.00
200	25		0.51	0.90	0.99	1.00	1.00

*Power calculations assume a 5% chance of incorrectly finding a violation.

Table A-4: Chance of finding violations in monitoring with a 50 ppm standard

Total samples collected	Number of composites analyzed	Subsamples in each composite	Chance of detecting violation* — Actual PCB concentration: 60	70	85	100	125
2	2		0.00	0.00	0.00	0.00	0.00
4	4		0.02	0.04	0.06	0.08	0.11
9	9	1	0.08	0.15	0.25	0.33	0.44
16	16		0.13	0.25	0.43	0.56	0.70
25	25		0.18	0.36	0.60	0.75	0.87
4	2		0.00	0.00	0.00	0.00	0.00
8	4		0.03	0.05	0.10	0.14	0.21
18	9	2	0.11	0.22	0.39	0.53	0.68
32	16		0.19	0.39	0.64	0.79	0.91
50	25		0.26	0.55	0.83	0.93	0.98
8	2		0.00	0.00	0.00	0.00	0.00
16	4		0.04	0.08	0.17	0.25	0.37
36	9	4	0.15	0.34	0.59	0.75	0.88
64	16		0.26	0.57	0.85	0.95	0.99
100	25		0.38	0.76	0.96	0.99	1.00
16	2		0.00	0.00	0.00	0.00	0.00
32	4		0.05	0.12	0.27	0.40	0.56
72	9	8	0.21	0.48	0.77	0.90	0.97
128	16		0.36	0.74	0.96	0.99	1.00
200	25		0.51	0.90	1.00	1.00	1.00

*Power calculations assume a 5% chance of incorrectly finding a violation.

Worksheet A-2: Hypothesis Testing for Verifying Clean-Up of PCB's

Example Data. Assume that 4 composite soil samples from the cleaned site are analyzed and have the following PCB levels:

PCB's (ppm)	Squared PCB's
11.0	121.0
5.0	25.0
52.0	2,704.0
10.0	100.0

Step 1: Find the average and standard deviation. Use the directions in Worksheet 1. For the example data given above:

Average of Samples = 19.50

Standard Deviation = 21.83

Step 2: Determine the Cut-Off Value. Make the following calculations:

- **Short-Cut Method.** In Table A-6, select the appropriate standard and find the cut-off which corresponds to the standard deviation and sample size which are closest to yours. Assume the standard is 50 ppm. For the example data, the standard deviation and sample size are 21.83 (which is close to 20) and 4, indicating a cut-off of 26.5.

- **Exact Method.** This method is slightly more complicated. First, in Table A-2, find the *t*-value for a sample size of 4, which is 2.35. Now make the following calculation:

$$\text{Cut-Off Value} = \text{Standard} - t\text{-value}\frac{\text{Standard Deviation}}{\sqrt{\text{Sample Size}}}\,.$$

For the example data,

$$\text{Cut-Off Value} = 50 - 2.35\frac{21.83}{\sqrt{4}} = 24.3.$$

Step 3: Interpretation. Since the average, 19.5, is smaller than the cut-off, 26.5 (using Method 1, or 24.3, using Method 2), we can conclude that the site meets the 50 ppm standard.

Table A-6: Cut-off values for clean-up verification

Standard	Standard deviation	Number of composite samples analyzed				
		2	4	9	16	25
	10	–	13.3	18.8	20.6	21.6
	15	–	7.4	15.7	18.4	19.9
	20	–	1.5	12.6	16.3	18.2
25	25	–	–	9.5	14.1	16.5
	35	–	–	3.3	9.7	13.0
	50	–	–	–	3.1	7.9
	65	–	–	–	–	2.8
	10	5.4	38.3	43.8	45.6	46.6
	20	–	26.5	37.6	41.3	43.2
	30	–	14.8	31.4	36.9	39.7
50	50	–	–	19.0	28.1	32.9
	60	–	–	12.8	23.8	29.5
	75	–	–	3.5	17.2	24.4
	125	–	–	–	–	7.3
	15	33.1	82.4	90.7	93.4	94.9
	25	–	70.6	84.5	89.1	91.5
	50	–	41.3	69.0	78.1	82.9
100	75	–	11.9	53.5	67.2	74.4
	100	–	–	38.0	56.3	65.8
	150	–	–	7.0	34.4	48.7
	250	–	–	–	–	14.5

*A dash (–) indicates that the standard deviation is too large to establish that the site is clean.

Table A-7: Chance of requiring additional clean-up with a 25 ppm standard

Total samples collected	Number of composites analyzed	Subsamples in each composite	Chance of requiring more clean-up*				
			Actual PCB concentration				
			1	5	10	15	20
2	2		–	0.82	1.00	1.00	1.00
4	4		–	–	0.31	0.86	0.97
9	9	1	–	–	0.01	0.48	0.87
16	16		–	–	–	0.22	0.79
25	25		–	–	–	0.07	0.70
4	2		–	0.16	1.00	1.00	1.00
8	4		–	–	0.07	0.74	0.96
18	9	2	–	–	–	0.24	0.81
32	16		–	–	–	0.05	0.68
50	25		–	–	–	–	0.54
8	2		–	–	1.00	1.00	1.00
16	4		–	–	–	0.54	0.93
36	9	4	–	–	–	0.07	0.72
64	16		–	–	–	–	0.53
100	25		–	–	–	–	0.35
16	2		–	–	0.97	1.00	1.00
32	4		–	–	–	0.33	0.90
72	9	8	–	–	–	0.01	0.61
128	16		–	–	–	–	0.37
200	25		–	–	–	–	0.18

*These calculations assume a 95% (or greater) chance of requiring additional clean-up when the concentration of PCB's is 25 ppm or greater. A dash (–) indicates that the chance is less than .005.

Table A-8: Chance of requiring additional clean-up with a 50 ppm standard

Total samples collected	Number of composites analyzed	Subsamples in each composite	Chance of requiring more clean-up*				
			Actual PCB concentration				
			10	15	20	30	40
2	2		0.82	1.00	1.00	1.00	1.00
4	4		–	0.02	0.31	0.86	0.97
9	9	1	–	–	0.01	0.48	0.87
16	16		–	–	–	0.22	0.79
25	25		–	–	–	0.07	0.70
4	2		–	0.16	1.00	1.00	1.00
8	4		–	–	0.07	0.74	0.96
18	9	2	–	–	–	0.24	0.81
32	16		–	–	–	0.05	0.68
50	25		–	–	–	–	0.54
8	2		–	0.77	1.00	1.00	1.00
16	4		–	–	–	0.54	0.93
36	9	4	–	–	–	0.07	0.72
64	16		–	–	–	–	0.53
100	25		–	–	–	–	0.35
16	2		–	0.27	0.97	1.00	1.00
32	4		–	–	–	0.33	0.90
72	9	8	–	–	–	0.01	0.61
128	16		–	–	–	–	0.37
200	25		–	–	–	–	0.18

*These calculations assume a 95% (or greater) chance of requiring additional clean-up when the concentration of PCB's is 50 ppm or greater. A dash (–) indicates that the chance is less than .005.

Table A-9: Chance of requiring additional clean-up with a 100 ppm standard

Total samples collected m	Number of composites analyzed m/c	Subsamples in each composite c	Chance of requiring more clean-up* Actual PCB concentration 20	30	40	60	80
2	2		0.82	1.00	1.00	1.00	1.00
4	4		–	0.02	0.31	0.86	0.97
9	9	1	–	–	0.01	0.48	0.87
16	16		–	–	–	0.22	0.79
25	25		–	–	–	0.07	0.70
4	2		0.16	0.98	1.00	1.00	1.00
8	4		–	–	0.07	0.74	0.96
18	9	2	–	–	–	0.24	0.81
32	16		–	–	–	0.05	0.68
50	25		–	–	–	–	0.54
8	2		–	0.77	1.00	1.00	1.00
16	4		–	–	–	0.54	0.93
36	9	4	–	–	–	0.07	0.72
64	16		–	–	–	–	0.53
100	25		–	–	–	–	0.35
16	2		–	0.27	0.97	1.00	1.00
32	4		–	–	–	0.33	0.90
72	9	8	–	–	–	0.01	0.61
128	16		–	–	–	–	0.37
200	25		–	–	–	–	0.18

*These calculations assume a 95% (or greater) chance of requiring additional clean-up when the concentration of PCB's is 100 ppm or greater. A dash (–) indicates that the chance is less than .005.

remove PCB's from the contaminated area, the homogeneity of samples taken after clean-up may be greater; that is, the standard deviations *after* clean-up may be smaller than the standard deviations before clean-up. In this case, the chance of requiring additional clean-up would be decreased from the values shown in Tables A-7 through A-9.

Notice that the probability of being required to do additional clean-up is related to both the PCB level remaining after clean-up – and thus to the intensity of the clean-up effort – and to the amount of data collected for verification. For example, suppose that the standard is 50 ppm. If the clean-up effort is less rigorous, resulting in residual PCB levels of about 30 ppm, say, then it will require more data to verify the clean-up than if the clean-up had been more intensive and the residual PCB level were only 20 ppm. This point has implications for allocating funds between the clean-up and verification efforts.

Clean-Up Verification for Lead and Cadmium. Because of smaller sampling and measurement errors, it is easier to detect whether lead and/or cadmium have been cleaned up with the amount of data required for detecting clean-up of PCB's.

A.3.4 What to Do When Clean-Up Is *Not* Verified

When the sample results indicate that the site has not been cleaned up thoroughly, it is very important to realize that it is *not sufficient* to simply clean and re-inspect the parts of the site that are in the sample. The reason for this is that the samples collected are representative of the entire site; if the collected samples have not been thoroughly cleaned up, then it must be assumed that the rest of the site has not been satisfactorily cleaned up, either.

Therefore, where clean-up does not pass verification, the *entire site* must be cleaned again! Then, after the site has been cleaned, all the verification steps must be repeated using a second, *independent* collection of samples.

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7. Author(s)
James Bethel, Westat, Inc.

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
Westat, Inc.
1650 Research Blvd.
Rockville, MD 20850

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The purpose of this document is to provide basic instructions for collecting and statistically analyzing samples of materials that are produced as a result of shredding automobiles and other metal objects, since the by-products of these recycling operations may contain concentrations of polychlorinated biphenyl's (PCBs). Shredders are large machines that convert light metal objects into fist size or smaller pieces of scrap metal. PCBs enter the shredder output when materials containing PCB-bearing fluids are shredded. Large concentrations of PCBs have been identified in some samples that have been collected at some recycling sites. Thus agencies may wish to collect data at shredder sites in order to study the situation in their locality. The sampling procedures described in this document are intended to produce representative samples of fluff that will give reasonably accurate estimates of the overall concentration of PCBs in the material being sampled. The document discusses sample selection, laboratory testing, and statistical procedures for analyzing the data.

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SAMPLING PROGRAM

- The following materials have been sampled 3 times and have shown fairly consistent results:
  - Baghouse dust exceeds PCB standard.
  - Seperator Table Fluff exceeds PCB and TCLP lead standards.
  - Copper Fines contains elevated PCB levels but does not exceed standard.
  - Scrap Copper contains elevated PCB levels but does not exceed standard
  - Scrap Steel contains detectable levels of PCBs.

OPERATING AND CONTINGENCY PROGRAM

- Al incoming materials are off-loaded on paved areas.
- Management of baghouse dust is almost fully compliant.
- Management of Seperator table fluff has improved, but still lacks with regard to labeling.
- Formal training of all employees was completed last week. Topics covered included health and safety aspects of lead and PCBs, proper handling of all materials and notification that the inside of the baghouses and shredder space may be oxygen deficient and should be monitored for oxygen levels before entering.
- A new box for ensuring better capture of the copper fines was delivered to the site earlier this week and will be in place by Monday.

- Spillover from shredder and chopper lines is being picked up on a more regular basis and rerun when practical to do so or placed in a gaylord box.
- Dirt and dust on pavement is being swept on a regular basis around the shredder and chopper lines and less frequently around other areas of the yard.
- A respirator program is partially in place. A number of full face(5-7 or so) and half mask cartridge type respirators were distributed to those employees on the chopper line. A fit test kit was purchsed and the repirator supplier will be providing instruction in it's use.
- An oxygen meter was purchased to determine if the baghouses and shredder space is oxygen deficient prior to each entry into these spaces.
- Impermeable gloves were purchased and distributed to all employees.
- Tyvek coveralls were purchased and provided to any employee that requests them.
- Arrangements for the proper disposal of baghouse dust and seperator table fluff are currently being made.

STILL TO DO .....

SAMPLING PROGRAM

- Air sampling is scheduled for Monday to Wednesday (9-25-95).
- One more sample of shredder pickings. However, sampling methodology needs modification.
- Three rounds of samples from pavement and floor sweepings. The sweepings will be generated on a more substantial basis over the coming months.

OPERATING AND CONTINGENCY PROGRAM

- Followup training may be necesary to better educate the employees on materials handling, labeling and management.
- Yard maintenance and sweeping needs to be established on a more regular basis.
- The respirator program needs to be finalized with records of fit tests and another training session on proper care of the respirators.
- A determination as to whether OSHA's lead standard applies to this site needs to be made. Part of that determination may include the upcoming air sampling. Whether the lead standard applies or not, better personal protection practices need to be established.